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April 1980

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

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Special Report:

FUTURE OF DUSKY MAY DEPEND ON CAPTIVE PROPAGATION

U.S. Fish and Wildlife Service Photo

Heavily streaked with black, with a yellow stripe outlining its bill and wing, the brown 5-inch long dusky seaside sparrow may be North America's rarest bird. This male (shown in aggressive posture typical of the March-July mating season) is one of only 13 known to occur in 1979 within the dusky's remaining range. Experts will comb suitable habitat in Florida's Brevard County this spring in the hope of finding nesting activity and females—unobserved since 1976.

While apparently never abundant nor widely distributed, Florida's dusky seaside sparrow *(Ammospiza maritima nigrescens)* is now ranked among the Nation's most critically Endangered species. The subspecies has disappeared from once-suitable habitat on Merritt Island on the east coast of Florida, and last year's surveys of the bird's remaining range near the St. Johns River turned up only 13 singing males. Since 1976, experts have failed to identify a single female.

The 1980 survey will soon be underway. But in the meantime, Florida and Federal officials are now considering captive breeding as possibly the only recourse to the dusky's recovery.

Emergency Strategy

This April, personnel from the Fish and Wildlife Service, Florida Game and Fresh Water Fish Commission, and Florida Audubon Society, will cooperate in an exhaustive survey to learn precisely how many duskies remain. Utilizing helicopters for access and optimum manpower, all potential habitat—some 25,000 acres in the St. Johns River Basin—will be surveyed using tape recorders and other techniques to seek out all surviving duskies, especially in the hope that females and evidence of nesting may be found.

Duskies generally breed from March to August, with two egg-laying peaks in late April to early May and late June

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to early July. Should an active nest be found this spring, any young would likely be taken (and hand-reared) at the age of 4–5 days, which should then induce the laying of a second brood, or "double-clutching." Extra precautions would be employed to protect any nests found, as the eggs and young are especially susceptible to predation.

Jim Baker, wildlife biologist for the Service's Jacksonville Area Office and team leader for the Service-appointed Dusky Seaside Sparrow Recovery Team, says team members have discussed the possibility of captive propagation for several years. "We kept hoping that we had missed a colony and that surveys would reveal additional birds." With no reproduction recorded since 1975 and dusky numbers continuing to plummet, the team now sees no alternative to a captive breeding program. Unless by June the results of this year's survey show promise, drastic action may have to be taken if this sparrow is to survive and recover to the point where it can again become a viable component of its ecosystem.

With this view in mind, the Florida Game and Fresh Water Fish Commission recently requested authorization from our Service to take remaining wild dusky seasides into captivity in an attempt to promote breeding and to "buy time" by increasing the bird's longevity through safe-keeping. Should the Service approve Florida's plan, the duskies will be captured in mid-July and placed in the care of specialists at Florida's Gainesville research laboratory.

According to Dr. Will Post, hired by the State to guide its captive breeding effort, 22 Scott's seaside sparrows *(Ammospiza maritima peninsulae)*—including 5 hand-reared last year—are now in captivity at the Gainesville laboratory to test the feasibility of captive breeding this closely related race. Nine pairs are showing signs of breeding, and Post hopes to have eggs by the first of April.

Captive maintenance has already been accomplished with northern seaside sparrows *(A. m. maritima)*, and it has been shown that wild seasides can adapt more readily to captivity if a few captive sparrows have been previous aviary occupants and can tutor the wild birds. (Post believes that Scott's seasides as well as three duskies taken into captivity last year—two males and a bird whose sex is yet to be determined—could help acclimatize newly-introduced duskies.)

With two-thirds Federal matching fund assistance from our Service, Florida is now readying propagation facilities to house duskies under the most natural, yet sanitary conditions possible. Stands of native grasses will be planted in the aviaries, with a central feeding area to be flooded periodically to simulate a tidal saltmarsh environment. Separate pens are being constructed to minimize mortality from infectious disease or catastrophe, and every imaginable precaution would be taken to preclude risks to the surviving population of duskies.

U.S. Fish and Wildlife Service Photo

A broad, open horizon with little brush is ideal habitat for the dusky seaside. The subspecies prefers cordgrass with ponds and pans scattered throughout a moist savanna.

To supplement their knowledge about seaside sparrows, Florida is also conducting literature searches and ecological studies of the Scott's seasides in the hope of better understanding its requirements and limiting characteristics. (About 250 of these sparrows have been banded this year as part of the State's plan to learn more about the role of predators, wildfires, pesticides, and other mortality factors that might give us better insight into dusky management.)

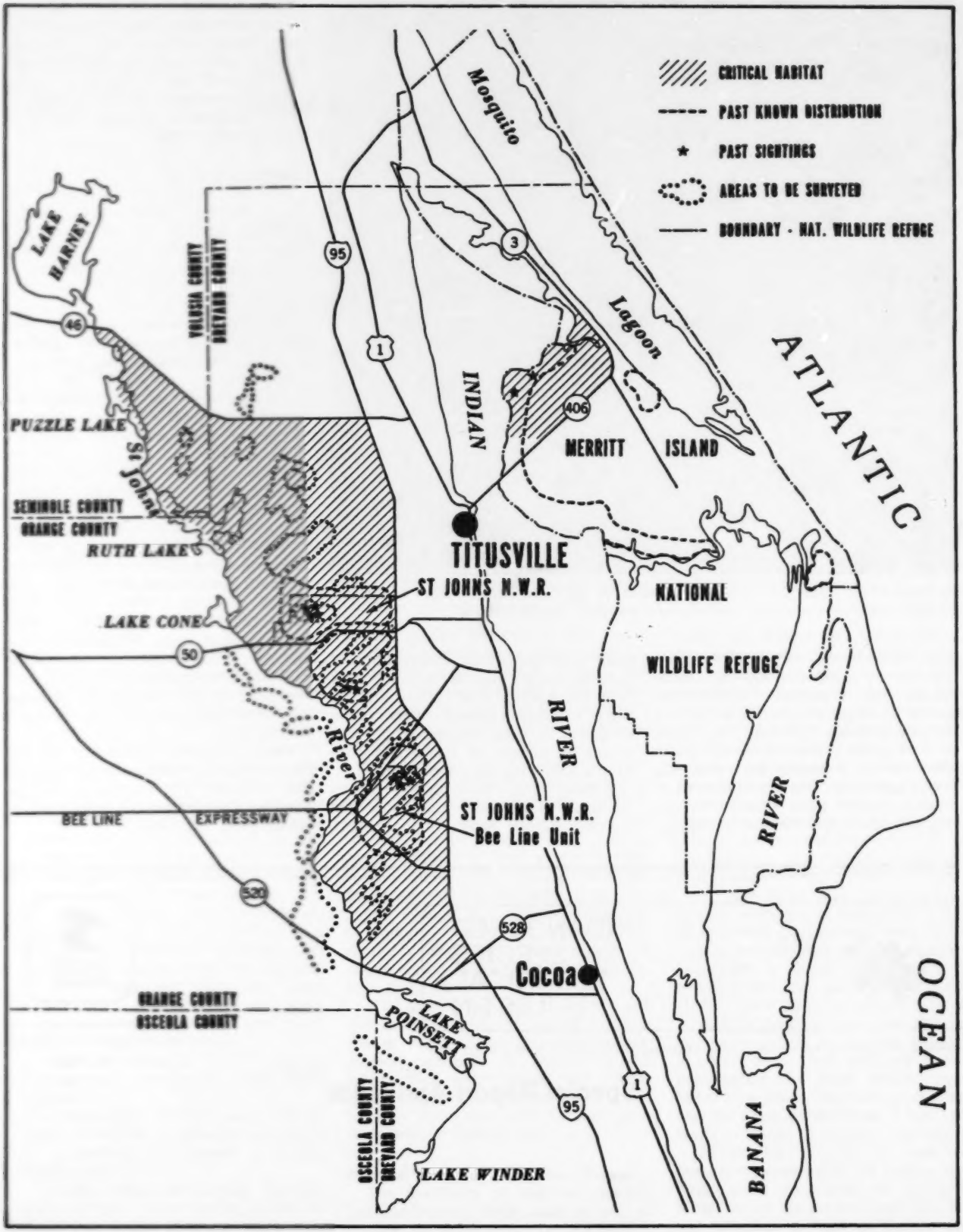
Life History and Declining Factors

The dusky is one of several subspecies of seaside sparrow native to Florida—all of which are apparently on the decline due to loss of coastal marsh habitat. The Smyrna seaside sparrow *(A. m. pelonota)*, once native to the New Smyrna Beach vicinity, is believed extinct, while the Cape Sable seaside sparrow *(A. m. mirabilis)*—occurring in the Everglades—is federally-listed as Endangered. Another race, the aforementioned Scott's seaside sparrow, occurs in stable populations on the west coast of Florida.

The dusky's past known distribution includes portions of Merritt Island (mostly within the Service's Merritt Island National Wildlife Refuge) and, on the mainland, remnant brackish marshes in the St. Johns River Basin within and south of the St. Johns National Wildlife Refuge. (The dusky's former range is indicated on the accompanying map.)

- **St. Johns**

Drainage (primarily for agriculture) has altered the water table in the upper St. Johns Basin, and much of the



The dusky seaside sparrow once ranged in portions of Merritt Island and throughout the St. Johns River Basin. The last recorded sightings on Merritt Island (1977) and in the vicinity of the St. Johns NWR (1979) are shown above—all occurring within the area designated on August 11, 1977, as Critical Habitat for the dusky. This year's survey effort will focus on suitable habitat near the St. Johns River.

U.S. Fish and Wildlife Service Photo

This blackened mass is the aftermath of the 1975 wildfire that destroyed most of the remaining dusky habitat on St. Johns.

dusky's habitat has been converted to pasture and areas better suited for housing and roads. Where the total mainland dusky population was estimated at nearly 900 in 1968 (having been rediscovered only a few years before), possibly no more than a dozen individuals remain today.

Biologists speculate that the birds evolved in a saltmarsh environment subjected to frequent but self-contained lightning fires occurring in the rainy season, when the marsh is wet and the humidity high. Although natural fires seem to play a beneficial role in maintaining dusky habitat (primarily by eliminating woody vegetation); winter wildfires have contributed to population reductions. Ranchers frequently burn cordgrass to improve pastures, but the fires often run wild, displacing duskies to nearby areas outside their preferred range. A catastrophic fire in 1975 destroyed most of the remaining habitat in the vicinity of the St. Johns Refuge (after which only 11 of 47 males survived), and many believe it signalled the dusky's demise.

- **Merritt Island**

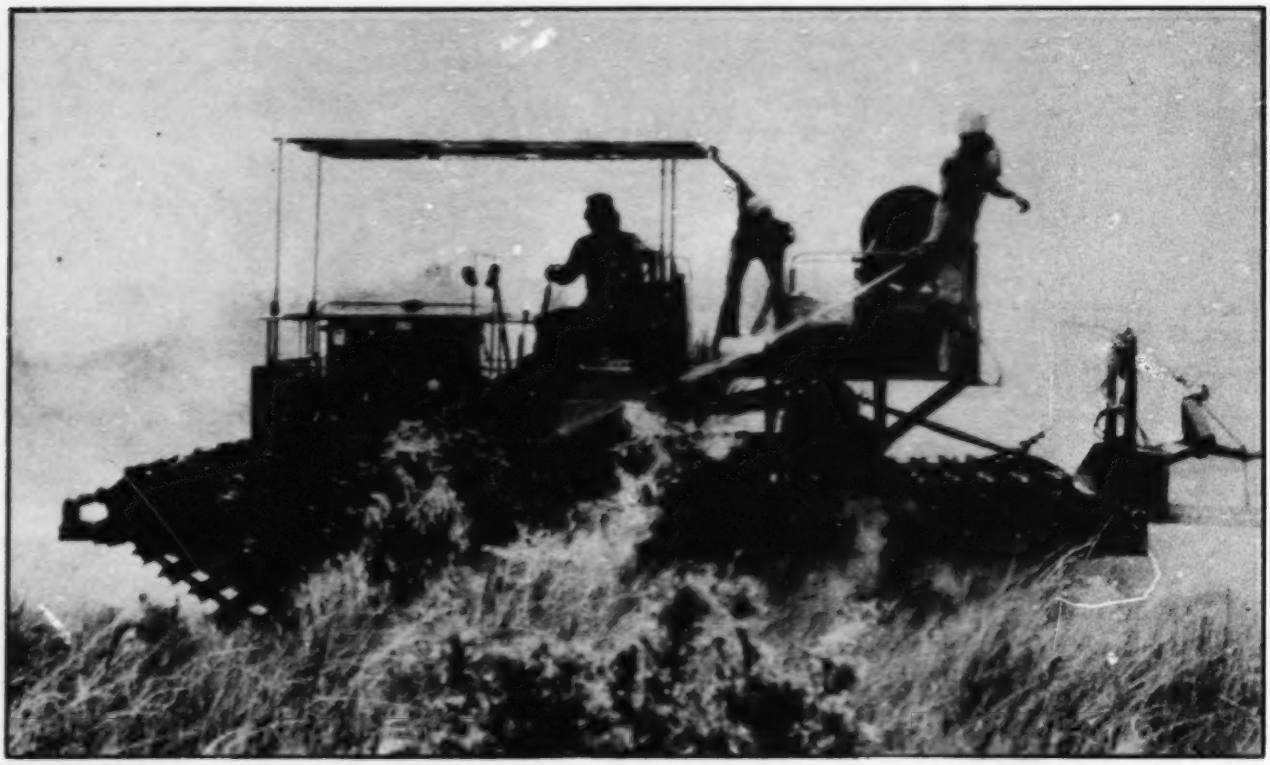
Dusky seaside populations were probably stable on Merritt Island prior to the mid-1940's, when several thousand birds were estimated to inhabit these marshes. The impoundment of marshes on the island from 1945–1955 (for mosquito control) and subsequent changes in the saltmarsh vegetation reduced the population to four colonies totalling 70 pairs in the early 1960's. By 1977, only two males were located on Merritt Island, and none in a 1978 survey.

While in recent times mosquito control has been a necessity on Merritt Island, a number of experts expressed concern over the impacts of insecticide use and water control measures shortly after the dusky was listed as Endangered under 1966 legislation. But conservation efforts on Merritt Island were complicated by a number of factors.

For one thing, management of the refuge has been a cooperative venture, as Merritt Island is managed for fish and wildlife resources by our Service, but is owned by the National Aeronautics and Space Administration (NASA). A third managing agency, Brevard County, also shares responsibility on refuge lands for mosquito control purposes.

(Jack Salmella, head of the County's mosquito control program, urged the Service to assess the possible impacts of impoundment and other control measures late in the 1960's. Subsequent Service studies showed that constant water levels destroyed cordgrass on which the dusky depends. A dike was removed, but too little was done too late.)

Many concerned with the decline of the dusky attribute its extirpation from the island to a mood of complacency—at one time looking to former St. Johns population levels as a hedge against extinction. Still others say conservation efforts failed because the dusky just was not "glamorous" enough to worry about. (The State designated a dusky seaside sparrow awareness month back in 1976, but a subsequent Service publicity conference engendered the interest of only



U.S. Fish and Wildlife Service Photo

St. Johns Refuge workers use a marsh buggy to set and control fires to maintain the preferred cordgrass habitat.

two individuals.)

Habitat Management Key to Recovery

Whether left to chance in the wild or bolstered through captive propagation, recovery of the dusky seaside sparrow will ultimately depend on the availability of suitable habitat to support it. As recommended by the Dusky Recovery Team, a number of measures are necessary to maintain and develop existing and potential habitat for this uniquely adapted subspecies.

Taking into account the dusky's preference for an "unbroken horizon," the St. Johns Refuge fire management plan calls for prescribed burning in a checkerboard pattern to simulate past conditions. Refuge personnel are also manually removing brush and palm trees (which the duskies shy away from apparently to avoid predators) within the sparrow's range.

Other components of the habitat management plan on St. Johns NWR include:

- vegetation control using herbicides (2–4–D is apparently successful in controlling the spread of woody vegetation).
- water level monitoring (duskies prefer a fairly moist habitat, which inhibits the growth of woody vegetation as well as wildfires).
- blackbird control (red-wings have become abundant in the area with the encroachment of *Baccharis* and other woody plants. Attempts are being made to control red-wings in the approximately 600 acres within the dusky's present range, as the territorial blackbirds harrass and compete with duskies, especially during the breeding season.)

In addition, the Service has purchased selected parcels (amounting to about 2,000 acres) within the "Beeline Tract" in the hope of preserving this valuable habitat, where 6 male duskies were sighted in last year's survey. Plans call for the fencing of these areas as well as portions of the St. Johns Refuge to preclude disruption by cattle in adjacent pastures. The refuge is now closed to the public because of the dusky's sensitivity to human disturbance.

(The conflict between mosquitos and the dusky's stringent habitat requirements have made conservation extremely difficult on Merritt Island, where high water levels and consequent vegetation changes have unfortunately precluded any success with restoration measures thus far.)

Artificial Insemination/Semen Storage

The feasibility of captive-breeding the Endangered dusky seaside will, of course, largely depend on the results of this year's survey. If a female should be found, then every possible attempt would be made to promote breeding. Should the birds be taken into captivity, and should they fail to breed in these semi-natural conditions, technology developed at the Service's Patuxent Wildlife Research Center to boost the fertility of whooping cranes and other Endangered populations may give us additional options.

Using Scott's seaside sparrows as surrogates, Dr. George Gee at the Patuxent Center plans to study the physiology and breeding behavior of these birds to perfect techniques for artificial insemination and semen preservation that could be used with the dusky.

We now know that maintenance of genetic diversity is especially critical to declining populations, as it is this pool of material that enables an animal population to adjust to changes in the environment. As Darwin discovered (1859), each species has an inherent amount of variation, modified throughout its evolution by natural selection to permit its survival. Although captive propagation of a small remnant population may insure the survival of a species for many generations, it inevitably leads to a loss of genetic diversity.

Methods for the collection, insemination, and preservation of semen have never been developed for passerine birds. Under his current proposal, Gee will establish a flock of Scott's seasides in facilities at the Patuxent Center in Maryland where semen collection, artificial insemination, and day-length manipulation methodolo-

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U.S. Fish and Wildlife Service Photo

Drainage of the upper St. Johns River Basin for agricultural purposes has altered the hydroperiod—no longer sufficient to maintain marsh habitat.

gies can be tested. As part of the plan, Gee will try to develop optimum techniques for cryogenic preservation (frozen storage) of sparrow semen—a delicate process that may take three or more years to perfect—which could allow us to preserve the remaining dusky gene pool. The establishment of a dusky sperm bank would then not only provide frozen material to supplement fresh semen for insemination of females (should they be found this year or in the future); it will also allow the use of this frozen semen in generations to come, thereby off-setting the unavoidable effects of inbreeding with such a small captive population.

Without the development of a healthy, "adaptable" population of duskies, further habitat management, land acquisition, and other recovery measures could in the end prove futile. In the meantime, however, habitat restoration and other management precautions will be accelerated in the hope of eventually restocking captive-reared duskies to suitable habitat in their historic range.

Comments Solicited

Florida's request for an amendment to its existing permit—allowing the possible removal of all remaining dusky seaside sparrows from the wild (in addition to the 3 now in captivity)—was published in the March 25, 1980, *Federal Register*.

While the comment period for this permit application officially expires April 23, 1980, the Service wishes to encourage the interested public to comment on this proposal through the duration of the spring survey effort. In recognition that capture of these individuals could place the entire remaining population of this subspecies under human care, every possible alternative course of action (concurrent with initial survey results) will be considered before a decision is made concerning the taking of duskies from the wild. Concurrence of the Service's Atlanta Regional Director would also be sought before any taking of nestlings or adult birds. Moreover, an intra-Service consultation on the matter must be completed in accordance with Section 7 of the Endangered Species Act before any final action on the permit request.

Kindly forward comments to the Director (WPO), (reference file number PRT 2-4329) U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

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INDEX

Endangered Species Technical Bulletins, January 1980-December 1980

(Key: V,4,6=Volume V, No. 4, page 6)

Achatinella
proposed E V,7,11

Albatross, short-tailed
proposed E V,8,11

Alligator, American
proposed changes to special rule V,8,4
final export findings V,11,11

Amphipod, Hay's spring
proposed E V,8,12

Amphipod, Kauai cave
proposed T, C.H. withdrawn V,10,7

Antioch Dunes
acquisition V,4,1
recovery plan V,4,9

Astragalus yoder-williamsii
emergency E, C.H. V,9,4

Bee, Antioch andrenid
status review V,6,12

Bee, yellow-banded andrenid
status review V,6,12

Beetle, Andrews' dune scarab
proposed T, C.H. withdrawn V,11,7

Beetle, Beller's ground
proposed E, C.H. withdrawn V,11,7

Beetle, California elderberry longhorn
reproposed C.H. V,6,14

Beetle, Columbia tiger
status review V,4,14

Beetle, Delta green ground
reproposed C.H. V,6,14
final T, C.H. V,9,6

Beetle, Giuliani's dune scarab
proposed T, C.H. withdrawn V,11,7

Beetle, globose dune
proposed T, C.H. withdrawn V,11,7

Beetle, Mojave rabbitbrush longhorn
reproposed C.H. V,6,14
proposed E, C.H. withdrawn V,11,7

Beetle, Robinson's rain scarab
proposed T, C.H. withdrawn V,11,7

Beetle, Sacramento anthicid
proposed T, C.H. withdrawn V,11,7

Beetle, San Joaquin dune
proposed T, C.H. withdrawn V,11,7

Beetle, Valley elderberry longhorn
final T, C.H. V,9,6

Bertrand, Gerard A.
named head of Massachusetts Audubon Society V, 3,10

Bivalves, Upper Mississippi River
recovery team appointed V,4,7

Boa, Virgin Island tree
status clarified V,1,11

Boas, Round Island
final E V,4,13

Bobcat
1979-80 export findings V,9,7

Butterfly, Bahaman swallowtail
Florida study V,8,5

Butterfly, blue-black silverspot
proposed T, C.H. withdrawn V,10,7

Butterfly, Callippe silverspot
proposed C.H. V,4,10
proposed E, C.H. withdrawn V,10,6

Butterfly, Dakota skipper
proposed T, C.H. withdrawn V,10,7

Butterfly, Great Basin silverspot
proposed T, C.H. withdrawn V,10,7

Butterfly, Karner blue
proposed T, C.H. withdrawn V,10,7

Butterfly, Lange's metalmark
Antioch Dunes acquisition V,4,1

Butterfly, Oregon silverspot
proposed C.H. V,4,10
final T, C.H. V,8,12

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Butterfly, Palos Verdes blue
proposed C.H. V,4,10
final E, C.H. V,8,12

Butterfly, Pawnee montane skipper
proposed E, C.H. withdrawn V,10,7

Butterfly, Schaus swallowtail
Florida study V,8,5

Butterfly, Uncompahgre fritillary
status review V,3,11

Callirhoe scabriuscula
proposed E V,7,10

Chub, bonytail
final E V,5,6

Chub, Borax Lake
emergency E, C.H. V,6,1
proposed E, C.H. V,11,8

Chub, humpback
extended range V,10,3

Chuckwalla, San Esteban Island
final E V,4,13

CITES
transfer of species to Appendix I V,2,3
1981 conference of parties V,4,4
1978 annual report V,5,5
Appendices lists revised V,5,5
notices V,6,4
potential proposals to amend Appendices V,7,14
Australian and South African proposals V,7,14
protection for cacti V,9,7

Condor, Andean
reintroduction in the wild V,8,3

Condor, California
cooperative conservation program V,1,8
revised recovery plan V,3,9
chick hatches in wild V,5,1
Service applies for permit V,5,3
death of chick investigated V,7,3

Conferences
AAZPA Great Lakes Regional Conference V,3,12
Northeast Endangered Species Conference V,3,12
Pennsylvania Raptor Conference V,5,7

Confiscated wildlife
exhibit V,7,12

Crane, whooping
recovery plan V,2,1
artificial insemination V,3,4
semen preservation V,3,4

Crocodile, American
final E V,1,10

Crocodile, saltwater
final E V,1,10

Darter, fountain
proposed C.H. V,4,11
final C.H. V,8,10

Darter, freckled
status review V,10,7

Darter, goldline
proposed E, C.H. withdrawn V,2,6

Darter, Maryland
proposed C.H. V,9,5

Darter, snail
new location V,11,1

Darter, Waccamaw
proposed E, C.H. withdrawn V,2,6

Darter, watercress
recovery plan V,7,8

Deer, Key
recovery plan V,7,9

Eagle, bald
conviction for killing and selling V,4,5
Washington symposium V,5,7
Chesapeake Bay project V,7,4
mid-winter survey V,7,6
New York program V,7,7
First American Festival V,7,8
Arkansas Eagle Awareness Week V,7,8

Echinacea tennesseensis
recovery team appointed V,4,7

Endangered and Threatened Species List
republication V,6,16

Endangered Species Act
1979 Amendments V,1,1
Section 4 regulations V,3,1
exemptions regulations V,4,3
seizure and forfeiture procedures V,4,14

Eriogonum gypsophilum
proposed T, C.H. V,8,14

Erysimum capitatum var. *angustatum*
Antioch Dunes acquisition V,4,1

Euphorbia skottsbergii var. *kalaeloana*
proposed E V,10,5

Falcon, peregrine
feature V,8,7

Fly, Antioch robber
status review V,6,12

Fly, Valley mydas
status review V,6,12

Gambusia, Goodenough
final E V,5,7

Gambusia, San Marcos
proposed C.H. V,4,11
final E, C.H. V,8,10

Gecko, Monito
proposed E, C.H. V,11,10

Gecko, Serpent Island
status review V,9,7

Ginseng, American
final export findings V,11,11

Grant-in-Aid program
reauthorization V,6,4

Hedeoma apiculatum
proposed T, C.H. V,9,6

Hedeoma todsenii
proposed E, C.H. V,8,14

Hudsonia montana
proposed T, C.H. V,6,15
final T, C.H. V,11,2

Iguana, Acklins ground
status review V,9,7

Iguana, Allen's Cay
status review V,9,7

Iguana, Andros Island ground
status review V,9,7,

Iguana, Cuban ground
status review V,9,7

Iguana, Exuma Island
status review V,9,7

Iguana, Fiji crested
final E V,4,13

Iguana, Fiji Island banded
final E V,4,13

Iguana, Jamaican
status review V,9,7

Iguana, Mayaguana
status review V,9,7

Iguana, Turks and Caicos
status review V,9,7

Iguana, Watling Island ground
status review V,9,7

Iguana, White Cay ground
status review V,9,7

International Convention Advisory Commission
created under 1979 amendments V,7,15

Isopod, Madison Cave
proposed T V,11,8

Isotria medeoloides
proposed E V,10,6

Jaguar
proposed E V,8,11

Kangaroo
proposed commercial import V,7,1
comment period on commercial import reopened V,8,13

Katydid, Middlekauff's
status review V,6,12

Killifish, Pahrump
recovery plan V,4,7

Killifish, Waccamaw
proposal withdrawn V,2,6

Land Acquisition
feature V,6,5

Law Enforcement
inter-agency cooperation V,4,5

Lechwe, red
reclassified T V,11,7

Leopard
proposed reclassification T V,4,1
comment period extended V,8,13

Licenses
import/export V,9,1

Lizard, blunt-nosed leopard
recovery plan V,5,3

Lizard, Coachella Valley fringe-toed
reproposed C.H. V,6,1
final T, C.H. V,10,1

Lizard, Gray's monitor
status review V,9,7

Lizard, Hierro giant
status review V,9,7

Logperch, Roanoke
status review V,6,14

Madtom, frecklebelly
status review V,10,7

Madtom, orangefin
status review V,6,14

Madtom, Ouchita
proposal withdrawn V,2,6

Manatee, West Indian
emergency protection area V,1,8
public use regulations V,2,5
recovery plan V,5,5
proposed protection areas V,8,15
permanent sanctuaries V,11,2

Margay
proposed E V,8,11

Michigan plants exhibit V,2,7

Minnow, Devil's River
reproposed C.H. V,6,12
proposed T, C.H. withdrawn V,10,7

Missouri eagle day V,2,7

Moth, Kern primrose shinx
final T V,5,7

Moth, San Francisco tree lupine
proposed T, C.H. withdrawn V,10,7

Mouse, Key Largo cotton
status review V,8,14

Mussel, Curtus'
status review V,8,14

Mussel, Judge Tait's
status review V,5,8

Mussel, Marshall's
status review V,5,8

Mussel, penitent
status review V,5,8

Mussel, stirrup shell
status review V,5,8

Nebraska State Report V,11,4

New York fish surveys V,2,7

Notice of Withdrawal
1,876 species V,1,1

Ocelot
proposed E V,8,11

Oenothera deltoides ssp. *howellii*
Antioch Dunes acquisition V,4,1

Office of the Scientific Authority
procedural regulations V,7,14

Paronychia argyrocoma var. *albimontana*
proposed T V,11,8

Parrot, thick-billed
proposed E V,8,11

Phacelia formosula
proposed E V,10,4

Ports of Entry
Dallas-Ft. Worth proposed V,8,5

Potentilla robbinsiana
proposed E, C.H. V,4,12
final E, C.H. V,10,4

Pupfish, Devil's Hole
recovery plan V,8,6

Pupfish, Leon Springs
reproposed C.H. V,6,12
final E, C.H. V,9,5

Quail, Merriam's Montezuma
petition to delist V,10,5

Rat, silver rice
status review V,8,13

Rattlesnake, Aruba Island
status review V,9,7

Rhinoceros, black
final E V,8,1

Salamander, San Marcos
proposed C.H. V,4,11
final T, C.H. V,8,10

San Clemente Island
feral animal removal V,2,6

Sculpin, pygmy
proposed E, C.H. withdrawn V,2,6

Sculpin, Shoshone
status review V,4,13

Shiner, Cahaba
proposed E, C.H. withdrawn V,2,6

Shrimp, Kentucky cave
notice of intent to list V,4,12
proposed E, C.H. V,11,7

Silverside, Waccamaw
proposed E, C.H. withdrawn V,2,6

Snail, Bliss Rapids
status review V,5,8

Snail, Snake River physa
status review V,5,8

READEX FICHE

Snail, spiny river
pictured V,1,1

Southeastern U.S. Marine Mammal and Sea Turtle Stranding Network V,9,8

Sparrow, dusky seaside
Special Report, April 1980

Spider, Kauai cave wolf
proposed E, C.H. withdrawn V,10,7

Stephanomeria malheurensis
proposed E, C.H. V,11,8

Sturgeon, Alabama shovelnose
status review V,10,7

Sucker, razorback
proposed T withdrawn V,6,15

Sunfish, spring pygmy
proposed E, C.H. withdrawn V,2,6

Tern, California least
recovery plan V,5,3

The Nature Conservancy V,6,10

Toad, black
proposed T, C.H. withdrawn V,2,6

Toad, Houston
propagation project V,1,5

Topminnow, Barrens
proposed E, C.H. withdrawn V,2,6

Tortoise, desert
proposed C.H. V,1,10
final T, C.H. V,9,1

Trout, Bonneville cutthroat
status review V,4,13

Turtle, Asiatic box
status review V,9,7

Turtle, Central American river
status review V,9,7

Turtle, Chinese big-headed
status review V,9,7

Turtle, hawksbill sea
proposed C.H. V,11,11

Turtle, Illinois mud
proposed C.H. V,1,10
proposed E, C.H. withdrawn V,9,5

Turtle, Key mud
proposed E,C.H. withdrawn V,8,13

Turtle, Pacific (Olive) Ridley sea
illegal trade V,8,4

Turtle, Plymouth red-bellied
final E, C.H. V,5,6

Turtle, sea
Republic of Maldives
stamps V,3,10
resuscitation procedures V,10,3

Viper, Lar Valley
status review V,9,7

Vireo, Bell's
status review V,3,11

Vole, Amargosa
status review V,7,11

Wasp, Antioch sphecid
status review V,6,12

Wasp, Antioch tiphiid
status review V,6,12

Wasp, Antioch vespid
status review V,6,12

Weevil, Antioch
status review V,6,12

Wildlife attitude survey V,1,9

Wolf, Northern Rocky Mountain
recovery plan V,6,3

Woodrat, Key Largo
status review V,8,14

Zizania texana
proposed C.H. V,4,11
final C.H. V,8,10

Abbreviations:
E=Endangered
T=Threatened
C.H.=Critical Habitat

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

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January 1980, Vol, V, No. 1

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

ENDANGERED SPECIES ACT EXTENDED AND AMENDED

New Scientific Authority and Commission Among New Provisions

On December 28, 1979, President Carter signed into law, for the second consecutive year, substantial amendments to the Endangered Species Act of 1973. Pointing to reauthorization of the Act (for a 3-year period) as one of his highest legislative priorities, the President also approved revisions to the listing, Section 7 consultation, and exemption provisions under the Act, and—perhaps most significantly—the creation of a new commission to advise on scientific policy under the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

Calling the Act "one of the most far-reaching and progressive laws ever enacted by any nation to protect wildlife and plant resources," the President said, "I look forward to and will continue to support the implementation of a vigorous endangered species program."

Listing and related provisions

Among other things, Public Law 96–159, in the words of President Carter, "strengthens our endangered species protection program by including plant as well as animal species in the emergency listing and international cooperation provisions."

Other revisions follow:

- A summary of proposed regulations (rather than the complete text) and, where applicable, a map of the proposed Critical Habitat, must be published in local newspapers within or adjacent to the habitat.
- Public meetings and hearings on

Continued on page 3

SERVICE WITHDRAWS PROPOSALS TO LIST 1,876 SPECIES

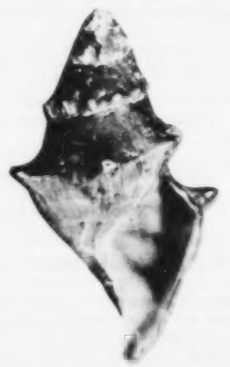
In line with 1978 Amendments to the Endangered Species Act, the Service has published a notice of withdrawal of five expired proposals to list as Endangered or Threatened 1,876 plants and animals (F.R. 12/10/79).

As enacted on November 10, 1978, Section 4(f)(5) of Public Law 95–632 requires the Service to officially withdraw all outstanding listing proposals not finalized within two years of their first publication in the *Federal Register*. The amended legislation authorized a one-year grace period following its enactment before affected proposals must be dropped, however, thus mandating the withdrawal of pending proposals published prior to November 10, 1977, (see October 1978 BULLETIN).

Most of the proposed species affected by the withdrawal (some 1,726) are native plants, while another 87 foreign plants and 63 invertebrates had to be dropped from immediate listing consideration. Affected proposals—including species ranging in portions of 46 States and some 27 foreign countries—are as follows:

	Proposed rule
Proposed Endangered status for 216 species appearing on Convention on International Trade	Sept. 26, 1975
Proposed Endangered or Threatened status for 32 U.S. snails	Apr. 26, 1976
Proposal to determine 2 birds, 1 lizard, 3 snails, and 1 insect, all indigenous to the	

Continued on page 3



The spiny river snail (*Io fluvialis*), symbol of the American Malacological Union, Inc., is one species affected by the Service's withdrawal notice. New biological data is being obtained in an effort to repropose this species, which is now limited to the Clinch, Powell, and Nolichucky Rivers in Tennessee and Virginia.

Photo by C. Kenneth Dodd

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Endangered Species Program regional staffers have reported the following activities for the month of December.

Region 1. The final report on the *'Ewa Botanical Survey of Threatened and Endangered Plants* (Hawaii) has been published. Questions on availability should be directed to the regional office.

A contract has been completed for a status report on Washington's Threatened and Endangered plants.

Region 2. Clear Creek Dam has been rebuilt to protect the Clear Creek gambusia *(Gambusia heterochir)*. The dam had been deteriorating and it was feared that a washout would destroy the species.

Region 3. Regional personnel briefed Senator David F. Durenberger's staff on the status of the gray wolf *(Canis lupus)* in northern Minnesota.

Region 4 and 5. The Columbia Dam Coordinating Committee, set up to provide guidance for the Tennessee Valley Authority in implementing the the Columbia Dam Biological Opinion and insuring the continued existence of Endangered mussels, met to discuss the group's goals and aspects of the dam project and the biological opinion.

Region 6. In 1979, 57 American peregrine falcons *(Falco peregrinus anatum)* reared by the Peregrine Fund (Ft. Collins, Colorado) were released into the wild in six western States. Thirty-one of the birds survived to the point of being self-sufficient.

Last year (1979) was the first year it was documented in the western

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U.S. Fish and Wildlife Service Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Iowa, Kansas, Missouri, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Alaska Area:** Alaska.

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Endangered Species Act Extended and Amended

Continued from page 1

Critical Habitat proposals are to be held separately (with a hearing to be held if requested within 15 days of a public meeting).

- The time period for which emergency listing and Critical Habitat designations are effective (now applicable to both animals and plants) has been extended from 120 to 240 days.
- A new provision requires the development and notice (with opportunity for public comment) of guidelines for the handling of petitions for listing, for priority systems for listing, and for priority systems for developing and implementing recovery plans.
- A "status review" is now required prior to the preparation of proposals for listing.
- Foreign nations—with the help of Department personnel—are encouraged under a new subsection to develop programs for the conservation of listed plants.

Section 7 Consultations/Exemptions

Necessary changes in language have been made throughout the Act to revise the jeopardy standard under Section 7 from "would jeopardize" to "is likely to jeopardize."

Other new provisions:

- All Federal agencies are required to "confer" with the Secretary on any action likely to jeopardize a proposed

United States that a peregrine released in a prior year (1978) returned to its release site.

Alaska Area. A wintering population of 1,750 Aleutian Canada geese *(Branta canadensis leucopareia)* has been estimated by observers in California. This is the highest wintering population recorded for the species since it was listed as Endangered (F.R. 3/11/67). An estimated fall flight of 1,700 was predicted from this year's nesting survey of Buldir Island, a survey conducted every three years to monitor the island's wild nesting population.

In the second year of propagation-release efforts to restore nesting populations on Agattu Island, no propagated geese have been sighted on the California wintering grounds. This summer the Service experimented by trapping 21 adults and 15 goslings from Buldir Island and releasing them with the propagated geese. Fourteen adults and four goslings from the Buldir Island population have been sighted on the wintering grounds.

Service Withdraws

Continued from page 1

California Channel Islands, to be Endangered species	June 1, 1976
Proposed Endangered status for some 1700 U.S. vascular plant taxa	June 16, 1976
Proposed Endangered or Threatened status for 41 U.S. species of Fauna	Jan. 12, 1977

It should be noted that all animals and plants subject to withdrawal may be reproposed under provisions of the 1978 Amendments if sufficient new information is available to warrant a new proposed listing.

Catch 22

Listing animals and plants to boost their protection and recovery under the Act's provisions is the most basic function of the Endangered Species Program. Why the delay?

Faced with the many complex procedural requirements brought with the new amendments (intertwined with other applicable laws), in addition to recent Presidential directives affecting all Federal regulatory processes, our Service's listing functions were slowed almost to a halt in 1979.

Consider the requirements:

- "To the maximum extent prudent," Critical Habitat must now be specified at the time a species is listed (with certain exceptions). Thus, all available data on habitat essential to the conservation of the species must be compiled preparatory to a listing and Critical Habitat proposal or, in cases where the species has been proposed, in a separate Critical Habitat proposal prior to final listing.
- As mandated under Section 4(b), we are now required to consider the economic impact of designating any particular area as Critical Habitat. If it is found that the benefits of excluding an impacted area from the designation outweigh the benefits of specifying the area, then the proposed Critical Habitat area may be so modified (so long as extinction of the species would not result). Thus, even before a listing and Critical Habitat proposal may be readied for publication, we must now consider biological as well as economic and other pertinent information before the extent of economic impacts on any given area can be measured. (Only then can we determine what, if any, area should be excluded from consideration.)
- In addition to the economic analyses required under the 1978 amendments, Executive Order 12044 requires

Continued on page 4

species. (The intent is for agencies to begin informal discussions at an early stage). No "irreversible or irretrievable commitment of resources" requirement is imposed for *proposed* species impacts.

- Biological assessments (as required prior to filing for an exemption from Section 7) must be conducted in cooperation with the Secretary and under the supervision of the appropriate Federal agency. (Completion of an adequate assessment then qualifies the applicant for a possible permanent exemption under the Act.)
- An exemption application from a permit or license applicant must be filed within 90 days of final agency action (such as permit denial, which may follow issuance of a biological opinion).
- With regard to exemption applications initiated subsequent to the issuance of negative biological opinions by both the Secretary of Interior and Commerce for the same agency action (such as that involving sea turtles, for which jurisdiction is shared), the two Departments will jointly convene a review board.
- Regarding exemptions under Section 7, threshold requirements shall apply to both the Federal agency and the exemption applicant. (i.e., the applicant must carry out all consultation requirements, conduct any necessary biological assessment, and refrain from making a commitment of resources in order to qualify for exemption consideration, regardless of the applicant's identity.)
- An exemption granted by the Endangered Species Committee shall be permanent with respect to all listed species regardless of whether the species was included in the biological assessment (and only if the assessment was conducted), *unless* a listed species not so identified will become extinct. (In this case, the Committee, which must meet within 30 days of such a finding by the Secretary, has 60 additional days to determine permanence.)

New Commission/Scientific Authority

Under a new section, the Secretary of the Interior (acting through the Fish and Wildlife Service) has been designated as both the U.S. Management Authority and the U.S. Scientific Authority for purposes of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). (Director Greenwalt has placed the Scientific Authority function under the Service's Associate Director for Research, while the Management Authority function will continue under the Associate Director for Federal Assistance.)

While abolishing the existing Endangered Species Scientific Authority (ESSA)—established previously under Executive Order 11911 as the U.S. Scientific Authority—within 90 days of enactment, the new law also creates an independent International Convention Advisory Commission (ICAC) to advise on scientific policy under CITES. Similar in structure to the existing ESSA, ICAC is to be composed of at least six (and possibly seven) members: with one member each appointed by:

—the Secretary of the Interior
—the Secretary of Agriculture
—the Secretary of Commerce
—the Director of the National Science Foundation.

One member (to serve a 2-year term) shall also be appointed by the Secretary of the Interior from among officers and employees of State fish and wildlife agencies, and the Secretary of the Smithsonian Institution is invited to appoint a seventh member.

A Chairman is to be elected annually by the members. All members must be scientificially qualified.

Speaking of the new Commission

Continued on page 4

Endangered Species Act Extended and Amended

Continued from page 3

upon signing the 1979 amendments, President Carter said, "that scientific integrity of the Convention will be preserved by the Commission's advice on the effects of trade, the listing of species on Convention appendices, and the interpretation and implementation of the Convention." Under the new provisions, the Commission will make recommendations (by majority vote) on all matters pertaining to the responsibilities of the Scientific Authority under the terms of the Convention.

As set forth in the new law, the new Commission will "to the extent practicable, ascertain the views of, and utilize the expertise of, the governmental and nongovernmental scientific communities, State agencies responsible for the conservation of wild fauna and flora, humane groups, zoological and botanical institutions, recreational and commercial interests, the conservation community, and others as appropriate" in discharging its responsibilities.

The public will have an opportunity to comment on all Management and Scientific Authority decisions, and the Scientific Authority must also provide, upon publication of final notices, an explanation of its reasons for any decision not consistent with the Commission's recommendations.

Until such time as the Chairman and members are appointed (or no longer than 90 days after enactment), the current ESSA will carry out the functions of the newly-created Commission.

Appropriations

Reauthorizing administration of the Endangered Species Act for an additional three years, the 1979 amendments allow appropriations to implement the Act's provisions (except as authorized under Section 6 and as discussed below for portions of Section 7) not to exceed the following amounts:

Interior:	$23,000,000	for FY 1980
	25,000,000	for FY 1981
	27,000,000	for FY 1982
Commerce:	$ 2,500,000	for FY 1980
	3,000,000	for FY 1981
	3,500,000	for FY 1982

Additional appropriations of $600,000 are also authorized to support Endangered Species Committee and review board functions (under Section 7) for each of Fiscal Years 1980, 1981, and 1982.

For the first time, the amendments also authorize appropriations for the Department of Agriculture to facilitate enforcement of the Act and the Convention with regard to the importation and exportation of terrestrial plants. Amounts not to exceed $1,500,000 for FY 1980, $1,750,000 for FY 1981, and $1,850,000 for FY 1982 have been allowed.

Scrimshaw

Finally, the deadline for the sale of scrimshaw has been extended under the amendments. Section 10(f) now provides for one last renewal of certificates of exemption, allowing the sale for three more years *only* of whale parts and products held in stock prior to 1973.

Service Withdraws

Continued from page 3

a "determination of significance" prior to the publication of any proposed ruling. Among other things, this involves an assessment of economic, recordkeeping, and other impacts on Federal, State, and local programs. (A rule is generally considered "significant" if it has an economic effect of more than $100 million.) If a proposal is found significant, then a work plan, notice of intent, and regulatory analysis would be required prior to publication of the proposal.

- Once finalized and published in the *Federal Register,* all Critical Habitat and listing proposals must be offered to scientific journals for publication; the substance of proposals must be published in affected area newspapers; and, notice must be given to local governments in affected areas (in addition to State Governors). Moreover, a public meeting must be held (and, when requested, a public hearing) *prior* to designation of Critical Habitat.
- As a separate stipulation, all proposed rulemaking packages must contain an Environmental Impact Assessment (in compliance with the National Environmental Policy Act) outlining the environmental impacts of listing the animal or plant. Should significant impact be discovered during the proposal process, then a full-blown Environmental Impact Statement may be required prior to final listing.
- Finally, as always, public comments are solicited and reviewed (and incorporated as appropriate in the final rulemaking document) prior to final listing and Critical Habitat determination.

At first, it seemed a no-win situation for the Program's listing biologists. Not only would it be a miraculous feat to compile and commit to paper all the biological, habitat, and economic data required by the 1978 provisions, *with available staff*, but it had to be done within given deadlines. Even more frustrating was the knowledge that—despite the emergency appointment of special task forces to speed compliance—the painstaking procedures for analyzing the economic impacts of a Critical Habitat determination were not yet completed. Without economic data, no determination on the appropriateness of Critical Habitat (in most cases) could be made. Without Critical Habitat, no listing.

This "catch-22" has not only forced the withdrawal of possibly hundreds of species which could have otherwise received protection; it has also now required staff specialists to spend valuable time pouring over new biological data on which to base listing consideration *prior* to reproposing many of these same jeopardized species.

Outlook for '80

While procedures are not yet fully developed, prospects for proposal and final listing actions in 1980 are somewhat brighter.

With help from Department solicitors, guidelines to assist regional and Washington Office specialists in conducting economic analyses are being finalized. Final regulations guiding compliance with all Section 4 (primarily listing) provisions—inclusive of changes brought with December 1979 amendments (see story on page 1)—should be published soon.

Several economists are joining our staff to assist in the necessary economic assessments. Critical Habitat specialists have been hired. At least six additional biologists will soon be employed by the Washington and regional offices to assist in listing and data gathering—responsibilities now shared by the regions.

Together, the regional and Washington Offices hope to propose more than 200 species for protection (and to list as many of these as possible) during 1980.

Houston Toad Propagation Project

Under contract to the Service, researchers at the Houston Zoological Gardens have been working to perfect methods for raising Endangered Houston toads *(Bufo houstonensis)* in captivity. It is hoped that successful propagation will help boost the recovery of this small, secretive toad, whose total numbers are estimated at less than 1,500.

Of 3,600 eggs collected from Bastrop County, Texas, in March 1978, and maintained at 24°C, 91 percent survived to metamorphose. Of 4,875 eggs laid by two pairs of *B. houstonensis* collected in amplexus in February 1979 (and maintained at 27°C), 95 percent of the tadpoles survived. Experiments with tadpole diets were conducted, and data on growth, thermal preference, and ultraviolet treatment were gathered.

Toadlets were more difficult to maintain in captivity, however, with only 2 percent and 5 percent survival rates reported for 1978 and 1979, respectively.

Five hundred sixty-four metamorphosing toads were released into the wild in 1978, and a stepwise release plan for adults has been devised.

The researchers will intensify their propagation efforts over the next two years, under contract to the Service, and plan to monitor the survival of sexually mature toads upon their release in the spring of 1981.

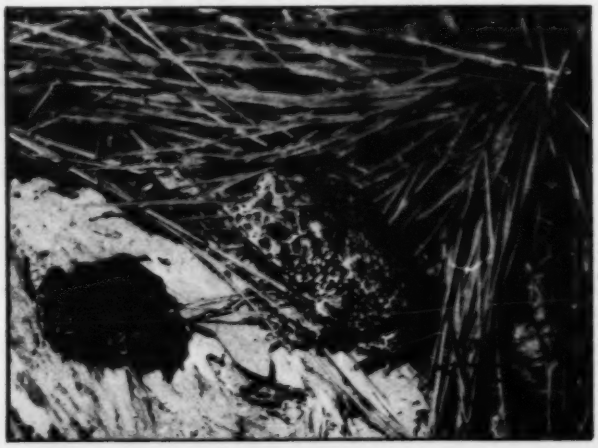


Photo by C. Kenneth Dodd

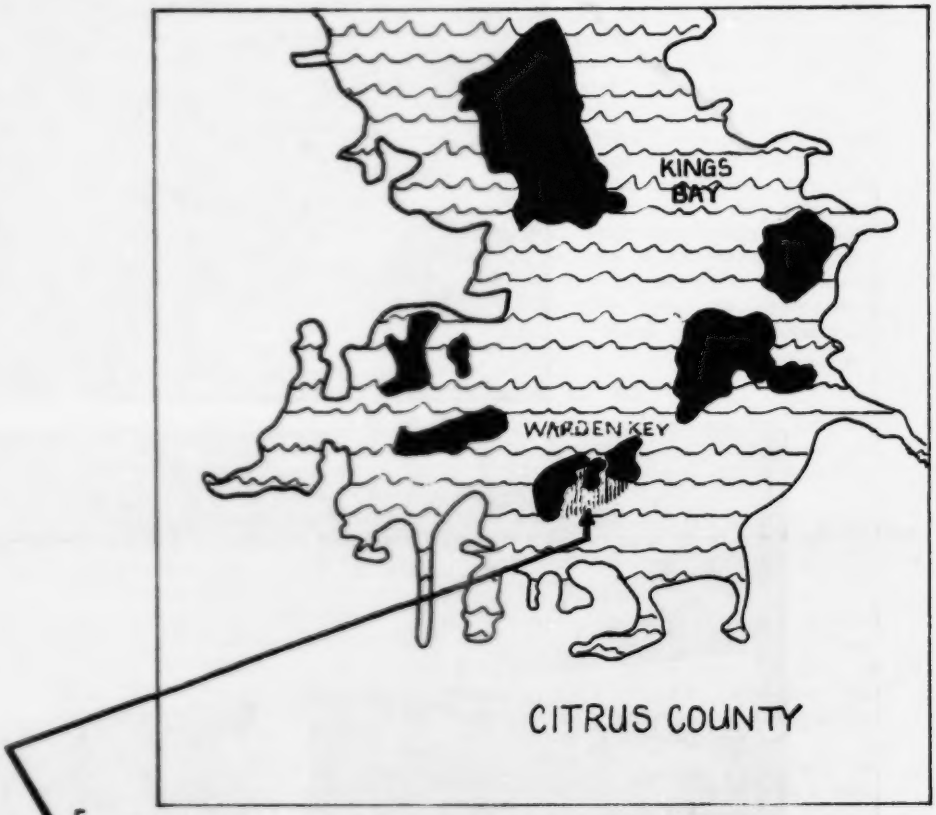
Photo by C. Kenneth Dodd

Emergency Protection Area For The Manatee

Acting to protect one of the most critically Endangered marine mammals, the Service has designated a portion of Kings Bay in Florida's Crystal River as a protected "refuge" for the manatee.

West Indian manatees *(Trichechus manatus)* are known to congregate in the natural warm-water springs of Kings Bay during the winter months, where they are safe from otherwise debilitating temperatures (below about 70 degrees F). Recent studies show that as many as 100 manatees, or one-tenth of the total estimated population, use the warm waters of Crystal River in the winter. (As many as 79 of the animals have been counted in a single survey of Kings Bay.)

Unfortunately, the presence of manatees is an added attraction for SCUBA divers and snorkelers who are



The shaded area (approximately 2 acres) adjacent to the U-shaped shoreline of Warden Key has been designated as a special manatee refuge, where all diving, snorkeling, and swimming is unlawful. This measure—effective through March 31, 1980—will afford protection to these mammals during winter months when the warm-water spring is essential to their survival.

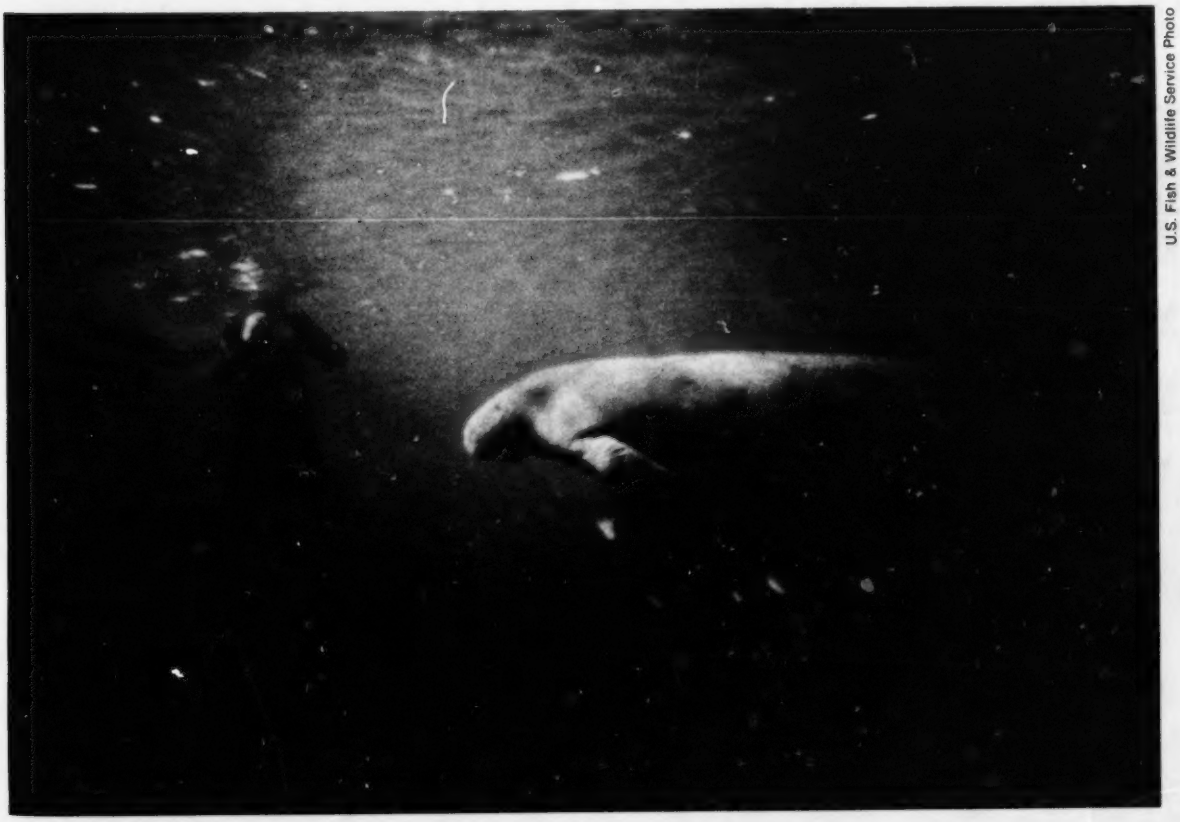
also drawn to the clear, warm waters of Kings Bay in the winter. Manatees are gentle creatures, and some seem to enjoy friendly contact with humans. The majority of animals, however, are fearful of aggressive swimmers, and will often retreat into colder waters where they may not survive.

Increasing human presence is now causing manatees to abandon their favorite resting areas close to the Bay's larger springs in favor of a tiny, 2-acre spot in the lee of Warden Key. Under its new regulations, the Florida Department of Natural Resources recently designated this a "motorboats prohibited" zone (imposing less restrictive controls over boat operations in other portions of Kings Bay). Once posted, however, Federal and State officials soon learned that manatee protection signs were actually attracting divers to this very location where the animals are most vulnerable.

In view of this critical disturbance problem, and in cooperation with Florida's protection efforts, the Service has established this same 2-acre area as an emergency refuge (not to be confused with a National Wildlife Refuge), where all swimming, diving, and snorkeling are prohibited for a limited time. (Federal "back-up" regulations authorizing the establishment of manatee protection areas, and prohibiting the violation of State laws protecting manatees, became effective last November (F.R. 10/22/79)—see the November 1979 BULLETIN.)

The emergency designation—effective through March 31, 1980—was advertised in local newspapers, and the area was posted as of January 11, 1980. The Service will soon publish notice in the *Federal Register* of its intent to propose this same area for permanent designation as a (seasonal) manatee protection area.

Manatees are gentle creatures, and some enjoy friendly contact with humans. The majority fear aggressive swimmers, however, and may be driven into colder waters where they cannot survive.



U.S. Fish & Wildlife Service Photo

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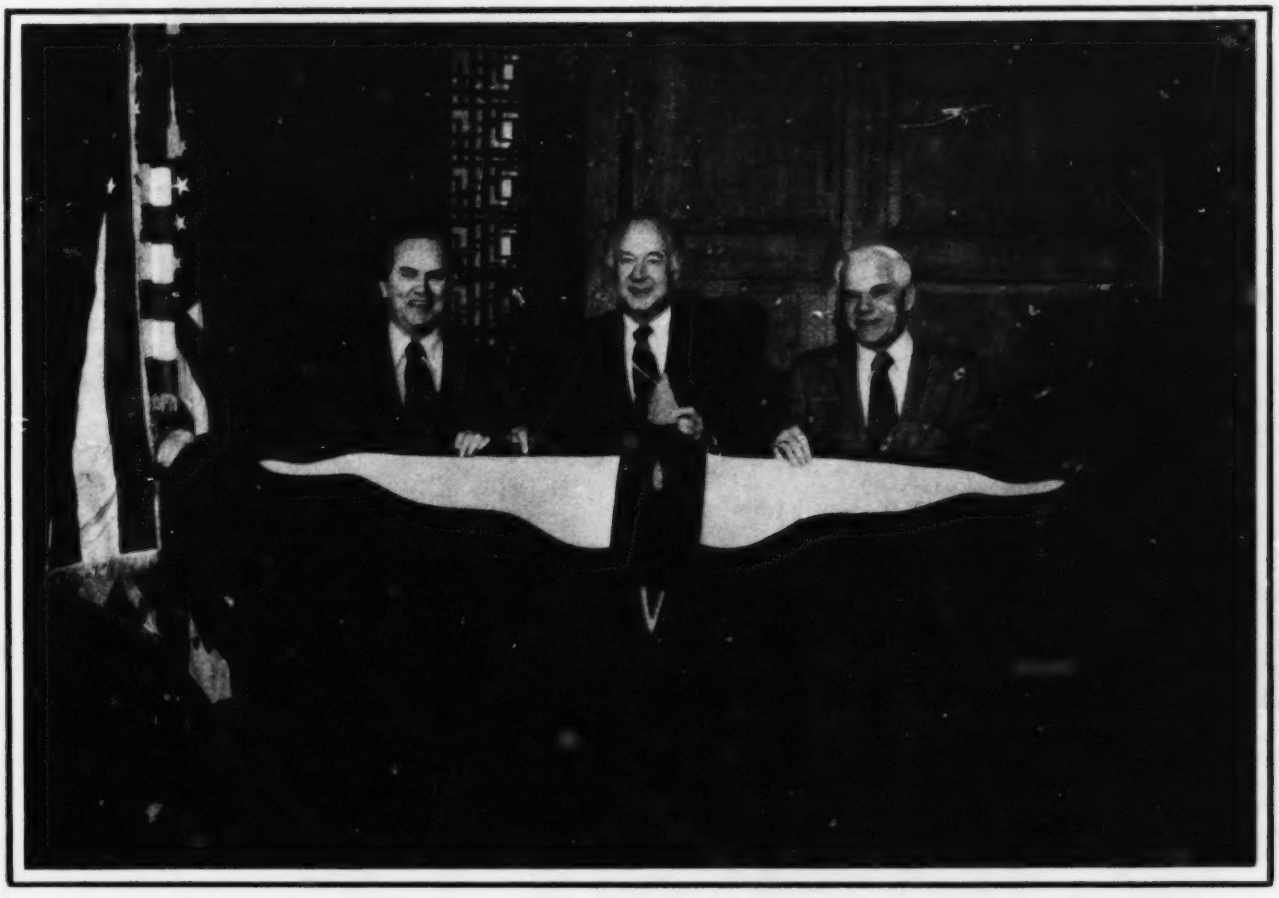
Cooperative California Condor Program Signed

A desperation attempt to save the Endangered California condor *(Gymnogyps californianus)* was given official sanction on December 17 as the Cooperative California Condor Conservation Program was signed by representatives of the Fish and Wildlife Service, National Audubon Society, California Department of Fish and Game, U.S. Forest Service, and Bureau of Land Management.

Speaking at the signing ceremony, Interior Secretary Cecil D. Andrus said it was necessary to choose between continued consumption of our natural resources, or saving a species which has dwindled to a population numbering 20 to 30 individuals. "We are determined to duplicate the growing success of the whooping crane, which continues to demonstrate that human



U.S. Fish and Wildlife Service Photo

Pictured from left to right: Russell Peterson, president of the National Audubon Society, Secretary Andrus, and Charles Fullerton, Director of the California Department of Fish and Game hold a cloth replica of a California condor at ceremony formalizing a multi-agency agreement to rescue this Endangered species.

intervention can mean the difference between survival and extinction."

The multiagency agreement was made possible, in part, by a $500,000 special appropriation approved by Congress in November. A like amount will be supplied by the National Audubon Society over the next 5 years. The program calls for research, protection of present habitat and identification of new habitat, the trapping, telemetering and tracking of remaining wild condors, and captive propagation aimed at reintroducing captive-bred condors into the wild over the next two to four decades.

This coming fall, John C. Ogden of Audubon and Noel F. R. Snyder of our Service's Patuxent Wildlife Research Center will begin direct examination of some of the condors. These birds will be captured in an effort to determine their ages, sex, and general health using blood, fecal, and feather pulp samples. Soon after their capture, the condors will be released, equipped with wing tags and radio transmitters. (The two research biologists will work in conjunction with Sanford R. Wilbur, who was recently selected as California Condor Coordinator. Wilbur, who also leads the California Condor Recovery Team, will be supervised by the Service's Sacramento Area Office for this new effort.)

The Forest Service and Bureau of Land Management will provide manpower and equipment for field research, conducting inventories, and special habitat studies.

In the meantime, biologists have begun field studies and experiments with similar species. In cooperation with the California Department of Fish and Game, the researchers are measuring pesticide levels in surrogate species such as the turkey vulture *(Cathartes aura)* in an attempt to pinpoint the effects of environmental contamination.

At the Service's Patuxent Wildlife Research Center, a captive breeding program for Andean condors *(Vultur gryphus)* has produced 11 healthy chicks. Also at Patuxent, wing tags have been tested successfully on Andeans, and radio transmitters under consideration for use on California condors are being tried.

This spring, captive-reared Andean condors fitted with radio transmitters will be released in South America, in their native habitat. Observations made during this experiment should provide important information for similar attempts with California condors.

Propagation facilities for California condors are now being built at the San Diego Zoo and Wild Animal Park. (A second facility will soon be underway at the University of California at Santa Cruz.) At present, the only California condor in captivity, a male named Topatopa, is housed at the Los Angeles Zoo. Biologists hope a mate can be found for this bird.

For more details on the condor recovery program, see our *Special Report,* "Last-ditch Contingency Plan Seen as Only Hope for California Condor," in the May 1979 BULLETIN.

SURVEY EXAMINES ATTITUDES ON ENDANGERED SPECIES

What do Americans think of saving Endangered species? A three-year study conducted by Dr. Stephen Kellert of the Yale School of Forestry and Environmental Studies, under contract to the Service, provides some interesting answers.

According to the study, which is based on 3,107 interviews conducted nationwide, people tend to be more supportive of an Endangered species that is either attractive, has a close biological relationship to humans, or is important in American history or folklore. That means that people generally favor protecting the bald eagle *(Haliaeetus leucocephalus),* eastern cougar *(Felis concolor cougar),* American crocodile *(Crocodylus acutus),* and the blue-black silverspot butterfly *(Speyeria nokomis nigrocaerulea),* a candidate Threatened species.

However, most people draw the line when it comes to protecting species like the furbish lousewort *(Pedicularis furbishiae)* or eastern indigo snake *(Drymachron corais couperi).*

Fish and Wildlife Service Director Lynn A. Greenwalt said, "The results of this study are significant because, without a doubt, people's opinions and behavior can influence the success or failure of conservation programs as much as any wildlife technique." Noting that the study results will be useful in developing policy guidelines and determining areas for education, Greenwalt was quick to add, "wildlife management can never be a popularity contest."

Specific findings of the study, the first to analyze overall public opinion on wildlife issues as opposed to polling special interest groups, include:

- Two-thirds of those asked approved of killing whales for a useful product as long as the species was not Endangered.
- Only 34 percent of the respondents had some knowledge of the Endangered Species Act and only 17 percent of those polled were familiar with the snail darter/Tellico Dam controversy.
- Most people, when asked, favored protecting wildlife at the expense of jobs, housing, and development projects.

This report is the first of four Dr. Kellert is preparing for the Service. The others will deal with characteristics of wildlife users, socioeconomic effects on attitudes, trends in wildlife attitudes and uses over the last 75 years, and how children's attitudes toward wildlife are formed.

Single copies of the report are available from the Publications Unit, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

Rulemaking Actions

December 1979

CRITICAL HABITAT REPROPOSED FOR ILLINOIS MUD TURTLE, DESERT TORTOISE POPULATION

Complying with new procedural requirements under amendments to the Endangered Species Act, the Service has reproposed Critical Habitat for the Illinois mud turtle and the Beaver Dam slope population of the desert tortoise (F.R. 12/7/79).

Background

The Illinois mud turtle *(Kinosternon flavescens spooneri)* and Beaver Dam slope population of the desert tortoise *(Gopherus agassizii)* were respectively proposed for protection as Endangered with determination of Critical Habitat on July 6 and August 23, 1978 (see the August and September 1978 BULLETINS). However, before final action could be taken on these proposals, President Carter signed into law the Endangered Species Act Amendments of 1978, significantly modifying procedures to be followed in designating Critical Habitat (see story on Service withdrawals on page 1 and October 1978 BULLETIN). Among other things, the new provisions call for public meetings (or hearings when requested), economic impact analyses, and summaries of activities likely to be affected prior to the final designation of Critical Habitat.

Turtle

Described in 1951, Illinois mud turtles are known to occur in a few localities in Missouri, Illinois, and Iowa. Major threats to the subspecies include habitat modification or destruction of ponds, wetlands and adjacent nesting sites, overcollection, predation, and pollution of water sites. The mud turtle is highly susceptible to changes in water quality and pond levels within its limited habitat.

Any significant alteration of water levels (from ground water dumping or drainage of ponds or wetlands) or reduction in water quality (from siltation, land clearing, or ground water pollution) that would reduce or eliminate vegetation and aquatic prey could adversely modify the turtle's Critical Habitat. Shoreline modification, dredging, filling, agriculture, real estate development, and other similar activities could also affect shoreline levels, water quality, nesting, and hibernation sites for the species.

A circular area (with a one-mile radius) in Illinois' Mason County and a roughly rectangular area (including Spring Lake, its shores, and Monsanto Bay) within Iowa's Louisa and Muscatine Counties have been proposed as Critical Habitat for the mud turtle.

Tortoise

On August 8, 1977, Dr. Glenn R. Stewart petitioned the Service to list as Endangered the Utah desert tortoise population and recommended areas for designation as Critical Habitat.

This unique population is threatened primarily by habitat modification by grazing animals (including competition for, and destruction of, feed plants, shelter and overwintering sites, and trampling). Overcollection, predation, and habitat destruction by off-road vehicles are also threats.

To protect its habitat, the Service proposes designation of a 35-square mile area of land in southwestern Utah's Washington County (administered by Interior's Bureau of Land Management) as Critical Habitat for the Beaver Dam slope population of the desert tortoise. Activities such as unregulated grazing, development that would destroy burrows and overwintering sites, overcollection and harrassment by humans, and the unregulated use of ORVs could adversely impact the tortoises or their habitat.

Public Meetings/Comments Solicited

The public was invited to attend public meetings on the proposal on January 10, 1980, (for the desert tortoise) and on January 30 and 31 (for the mud turtle). We regret that we were unable to provide advance notification of these public meetings to BULLETIN readers.

Comments, as well as biological and economic data, in response to this proposal should be submitted no later than February 5, 1980, to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

The Service has drafted an impact analysis, and believes at this time that economic and other impacts of this proposed action are insignificant (under provisions of the 1978 Amendments and other applicable Federal laws). Upon completion, a final impact analysis will serve as the basis for a determination as to whether exclusion of any area from Critical Habitat designation is warranted (for economic impact or other reasons).

MUD TURTLE COMMENT PERIOD EXTENDED

During public meetings on the reproposal of Critical Habitat for the Illinois mud turtle, additional technical information on the status of this species was presented. To allow full submission and consideration of all available data on the turtle, the Service has extended the comment period on its reproposal to March 7, 1980.

TWO CROCODILES ENDANGERED

Because of increasing exploitation and habitat loss, populations of the American crocodile *(Crocodylus acutus)* and the saltwater crocodile *(Crocodylus porosus)* outside of Papua New Guinea have been listed by the Service as Endangered (F.R. 12/18/79).

The American crocodile occurs on islands and coastal areas throughout the Caribbean Sea and on the Pacific Coast of Central and South America from Mexico to Ecuador. The saltwater, or estuarine, crocodile ranges throughout Australia and Southeast Asia, where it occurs in Papua New Guinea, Indonesia, Malaysia, Thailand, Burma, Bangladesh, India, Cambodia, Vietnam, Sri Lanka, and the Philippines. This species may be the largest of reptiles, with lengths reported at well over 20 feet.

Loss of much available habitat throughout their ranges has made these species especially vulnerable to the ever-increasing human presence. Crocodilians do not tolerate much human disturbance, especially while nesting, and human harrassment as well as the destruction of suitable nesting and basking sites are major factors in the decline of both *C. acutus* and *C. porosus*.

Crocodilian hides are extremely valuable in the production of fashionable leather items, and poaching constitutes a primary threat to the saltwater and American crocodile even in areas where restrictions are imposed on taking and commerce in these species. In countries where the species are unprotected, some populations have been virtually eliminated.

Malicious killing has also taken its toll on crocodilians—especially involving *C. porosus* near populated areas, where the species has earned a reputation as a person eater.

Populations of *C. porosus* and *C. acutus* are protected under appendices to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), a 54-nation treaty designed to monitor trade in imperilled species.* While many countries also have their own laws protecting these crocodilians, they are often ignored, or are impossible to enforce due to a lack of manpower and funds.

Commercial farming schemes have also impacted populations of crocodiles, as they often rely on young collected from the wild. In some cases, *C. porosus* has been hybridized with protected species in an attempt to circumvent trade restrictions, with detrimental effects to both species involved.

Because of assurances from the Government of Papua New Guinea that its wild populations are not now jeodardized and that it will strictly regulate crocodile farming and other potentially exploitative activities in that country, the Service has excluded the Papua New Guinea population of *C. porosus* from the Endangered classification.

Both the American and saltwater crocodile (exclusive of the Papua New Guinea population) had been proposed for listing as Endangered on July 24, 1979 (see the August 1979 BULLETIN), subsequent to a status review (F.R. 2/5/79). The Florida population of American crocodile was already listed as Endangered on September 25, 1975, and its Critical Habitat has been designated (F.R. 9/24/76).

The protection afforded these reptiles under the Endangered Species Act will supplement that now provided under CITES by further restricting commercial trade in their parts and products.

* *C. acutus* is listed on Appendix II (except for the Florida population, which is on Appendix I), and *C. porosus* is listed on Appendix I (except for the Papua New Guinea population, which is on Appendix II).

STATUS OF VIRGIN ISLANDS BOA CLARIFIED

A boa by any other name is still Endangered. In the course of reviewing the status of various animal species listed before 1975 (F.R. 5/21/79), the Service discovered that a change in the scientific name of the Virgin Islands tree boa may cause confusion over its Endangered status.

The Virgin Islands tree boa was listed as Endangered under the name *Epicrates inornatus* (the "Puerto Rican" boa) on October 13, 1970. At that time, the Virgin Islands population was classified as a subspecies, *Epicrates inornatus granti*. The data used to list this snake was supplied by Dr. James A. Peters of the U.S. National Museum and included the British Virgin Islands in the range of *E. inornatus* as well as mentioning problems this snake encountered in the Virgin Islands. It is clear then that the Virgin Islands boas were included as Endangered under the name *Epicrates inornatus*.

However, in 1974, the Virgin Islands population was relegated to the species *Epicrates monensis*, inclusive of *E. m. monensis* from Mona Island in Puerto Rico, and *E. m. granti* from the U.S. and British Virgin Islands. The name change never made the *Federal Register* or 50 CFR 17.11, so it has been generally overlooked that boas in the Virgin Islands are protected as Endangered.

Because this rule is only a technical correction to the Endangered species list, notice and comment are being waived and the rule became effective upon publication (F.R. 12/7/79).

FEDERAL CRITICAL HABITAT RECOMMENDATIONS DUE

We would like to take this opportunity to remind all Federal agencies of the deadlines for the submission of recommendations for Critical Habitat designations.

In his May 1977 Environmental Message, President Carter directed all Federal land-managing agencies to survey their lands and make Critical Habitat recommendations according to timetables established by the Secretary of the Interior (see January 1978 BULLETIN). Because of additional procedural requirements imposed by the Endangered Species Act Amendments of 1978 affecting both listing and formal Critical Habitat determination, Federal agencies have also been asked to supplement necessary biological information with data on economic and other anticipated impacts of Critical Habitat designation on their lands.

In line with species priority categories previously provided to affected agencies, deadlines for the submission of biological (and if possible economic and other data) are:

High priority species*: January 1, 1980,

Medium priority species: July 1, 1980,

Low priority species: January 1, 1981.

* If specific reference lists have not been provided, or for additional guidance on data required, kindly contact Dr. Paul Opler, Office of Endangered Species, 703/235-1975.

Rulemaking Actions

Continued on page 12

GPO 311-311

Rulemaking Actions

Continued from page 11

PLANT DATA SOLICITED

A majority of the U.S. plants affected by the December 10, 1979, withdrawal notice (see story on page 1) were also included in a July 1, 1975, notice of review soliciting data on the status of, and threats to, 3,187 vascular plant taxa (considered by the Smithsonian Institution as endangered, threatened, or extinct). The Service continues to welcome data on the 3,131 plants that remain subject to this review, for possible listing consideration. (These plant taxa should be considered in environmental planning.)

In addition, to incorporate new information on these and other vulnerable plant taxa, the Service plans to publish an updated notice (to supersede the 7/1/75 notice) of candidate plants that may qualify for listing under the amended Act. In this regard, substantive data on the status, population numbers, distribution, and threats to rare plants are hereby solicited, to be forwarded to the Office of Endangered Species, Attn: Plant Notice, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240, by March 15, 1980.

BOX SCORE OF SPECIES LISTINGS

Category	Number of Endangered Species			Number of Threatened Species		
	U.S.	Foreign	Total	U.S.	Foreign	Total
Mammals	35	251	286	3	21	24
Birds	67	145	212	3		3
Reptiles	11	50	61	10		10
Amphibians	5	9	14	2		2
Fishes	29	11	40	12		12
Snails	2	1	3	5		5
Clams	23	2	25			
Crustaceans	1		1			
Insects	6		6	2		2
Plants	49		49	7	2	9
Total	228	469	697	44	23	67

Number of species currently proposed: 45 animals (no plants)
Number of Critical Habitats listed: 35
Number of Recovery Teams appointed: 66
Number of Recovery Plans approved: 30
Number of Cooperative Agreements signed with States:
33 (fish & wildlife)
3 (plants)

December 31, 1979

New Publications

Status of Endangered and Threatened Plant Species on Tonopah Test Range—A Survey, written by William A. Rhoades, Susan A. Cochrane, and Michael P. Williams for the Department of Energy, provides information on proposed endangered and candidate threatened plant species either present or suspected to be present on the Tonopah Test Range in Nevada, a test site for weapons ballistics, rocket and gun firings, chemical explosives, and nuclear ordnance for the U.S. Government. The report is available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161, at $5.50 per printed copy or $2.25 for microfiche.

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

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February 1980, Vol. V, No. 2

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

Service Plan Maps Whooping Crane Recovery

A popular symbol of endangered wildlife, the whooping crane *(Grus americana)* stands to benefit from a Service-approved recovery plan.

The concept of whooping crane recovery is not new to those concerned with the survival of this stately bird, the tallest in North America. Management actions by the United States and Canada, in response to increasing public concern for the crane, have resulted in a gradual increase in their numbers —from a dismal low point of only 21 birds in 1941, to 119 in both wild and captive populations.

According to the Service-appointed Whooping Crane Recovery Team, the plan's prime objective of removing the whooping crane from Endangered status could be met by (1) increasing to at least 40 nesting pairs the wild population that migrates between breeding grounds in Canada's Wood Buffalo National Park and wintering grounds at the Aransas National Wildlife Refuge in Texas and (2) establishing at least two additional, separate, and self-sustaining populations numbering at least 20 nesting pairs each.

(Current whooper populations include the wild Wood Buffalo-Aransas flock, a foster-reared wild population which migrates between Grays Lake National Wildlife Refuge in Idaho and the Rio Grande Valley in New Mexico, and captive birds at the Service's Patuxent Wildlife Research Center in Maryland, the International Crane Foundation in Baraboo, Wisconsin, and the San Antonio Zoo.)

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Background

The whooping crane has never been common in recent times, with the population estimated at about 1,300 in the mid-1800's. At the time of the establishment of the Aransas Refuge in 1937, only two small breeding populations remained—the migratory Wood Buffalo-Aransas flock and a sedentary population in southwestern Louisiana. A storm in 1940 reduced the Louisiana population beyond recovery. The last member of that population was taken into captivity in 1948.

Historically, the whooper's breeding range (during North American settlement) extended from central Illinois, northwest through the northern half of Iowa, western half of Minnesota, northeastern corner of North Dakota, southern Manitoba and Saskatchewan, to the vicinity of Edmonton, Alberta. Whooping cranes disappeared from the heart of their breeding range in the northcentral United States by the 1890's. In 1954, an isolated breeding population was discovered in Wood Buffalo National Park—the only wild population that managed to survive.

Reasons for Decline

There have been many factors associated with the species' decline. As with many other migratory birds with delayed sexual maturity (estimated at 4 to 6 years of age) and apparent life-long pair bonds, whooping cranes adhere to their ancestral breeding grounds, migratory routes, and wintering areas, leaving little likelihood for expansion.

Most significant in the species' decline are man-associated factors. The agricultural development of the Great Plains made nearly all of the whooper's original range unsuitable. Disruptive practices included draining, burning, plowing, sowing, cultivating, harvesting, and human activity associated with these operations. Although whoopers will tolerate short periods of human intrusion, they are extremely wary on the breeding grounds and will not stay near human activity.

To date, there is no evidence that pesticide contamination has adversely affected the welfare of the whooping crane. However, potential harm from environmental contamination (such as oil spills which have occurred near the

Continued on page 4

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Endangered Species Program regional staffers have reported the following activities for the month of January.

Region 1. The *'Ewa Plains Botanical Survey* has been completed. Copies are available from the Pacific Islands Area Office, U.S. Fish and Wildlife Service, 300 Ala Moana Blvd., Rm. 5302, Honolulu, Hawaii 96850.

Status reports on 21 candidate Threatened and Endangered plants in Idaho were received in the regional office.

Recovery plans for the Pahrump killifish *(Empetrichythys latos),* California condor *(Gymnogyps californianus),* and California least tern *(Sterna albifrons browni)* were submitted for the Director's approval.

Region 2. The red wolf *(Canis rufus)* and Gila trout *(Salmo gilae)* Endangered Species Reports were published and are available from the Albuquerque Regional Office.

Jack Woody met with the Departmento de Pecas in Mexico to discuss cooperative agreements for conservation programs in areas of mutual concern—specifically, sea turtles and freshwater fishes.

The first quarterly Dexter National Fish Hatchery Endangered Fishes Program review was held.

A female loggerhead sea turtle *(Caretta caretta),* radio tagged in Louisiana, is now reported near Brownsville, Texas. The turtle has logged 400 miles in 4 months.

Region 3. Regional personnel met with the Louisa Ecological Advisory committee to discuss the !llinois mud turtle *(Kinosternon flavescens spooneri).* A public meeting on the reproposal of Critical Habitat for this species was held in Springfield, Illinois.

The Regional Office hosted a meeting of plant contractors from all six States (also attended by Forest Service, Nature Conservancy, and Region 5 representatives).

Region 5. Funding for plant survey work in Delaware, Maryland, and West Virginia has been approved. This is the second round of surveys in these States, and will provide data on additional plants which should be considered for protection as Endangered or Threatened species.

Final reports for rare and endangered plants of New York, Maryland, and Pennsylvania were received.

Both Region 5 and 3 are coordinating their plant activities, cooperating in the development of survey formats, data exchange, and conservation plans.

Region 6. Public meetings were held on January 10 (on the reproposal of Critical Habitat for the Beaver Dam slope population of the desert tortoise, *Gopherus agassizii,* and on January 31 (on the Critical Habitat reproposal for the Illinois mud turtle, *Kinosternon flavescens spooneri).*

To further assess the effects of the O'Neill Irrigation Project, Interior's Water and Power Resource Service (WPRS) is sponsoring a study of the Niobrara River in northern Nebraska. Subsequent to our Service's September 1979 biological opinion indicating that reduced water flows resulting from the proposed Norden Dam would likely jeopardize the whooping crane *(Grus americana),* WPRS will study possible alternatives to dam opera-

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U.S. Fish and Wildlife Service Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Iowa, Kansas, Missouri, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Alaska Area:** Alaska.

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tions to maintain sandbars and associated habitat used as a stopover along the whooper's long migration to its breeding grounds in Canada. Our Service (with funding from WPRS) will also conduct bald eagle *(Haliaeetus leucocephalus)* surveys along the Niobrara to determine possible impacts.

Three Primates and Seven Cacti Considered for Transfer to Appendix I

Photo by Jessie Cohen

The Diana monkey, occurring only in West Africa, is one of the primates being considered for transfer to Appendix I of CITES.

Based on information indicating the need to further restrict trade in these species, the Service is considering proposing the transfer of two monkeys, a mandrill, and seven species of Mexican cacti from Appendix II to Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)—F.R. 1/4/80.

All of these species and one additional primate (subsequently shown to be ineligible) had been included in proposals previously presented by the United States at a Special Working Session of CITES party nations in October 1977. Although the delegates to the technical meeting endorsed the U.S. proposals, they could not be formally adopted until submitted to the Conference of the parties.

The Service is now seeking information on the status of the following plants and animals now listed under Appendix II (those species which, although not now necessarily threatened with extinction, may become so unless trade in them is strictly controlled) to determine whether to proceed with U.S. proposals to place them on the more restrictive Appendix I (those species threatened with extinction which are or may be affected by trade).

Cacti

Ariocarpus agavoides (Castaneda) E. F. Anderson. Known as the living rock cactus, Magueyitos or Chaute, this cactus is known from one area in Tamaulipas, Mexico, where it is threatened by overcollecting for horticultural purposes. Plants grown from seed may take at least five years before flowering (none are known to be grown by any U.S. nursery), and most specimens in trade are therefore obtained from the wild.

Ariocarpus scapharostrus Bodeker. This cactus is also called the living rock cactus or Chaute. It is known from one area in Nuevo Léon, Mexico, and is also jeopardized by overcollecting. No source of seed-grown plants is known, making the species even more vulnerable to commercial harvest. Current information is lacking on the extent of national utilization or international trade.

Aztekium ritteri Bodeker. Known from one area in Nuevo Léon, the Aztec cactus population has been estimated at 2,000–3,000 individuals. Although the extent of national utilization and international trade are not known, collecting from the wild has apparently endangered this species (which is difficult to cultivate). The Endangered Species Scientific Authority (ESSA) urges inclusion of this cactus on Appendix I due to its rarity, restricted distribution, and high value in trade.

Echinocereus lindsayi Meyran. Known from one location in Baja California, Mexico, this cactus (which has no common name) has been virtually extirpated from its native habitat by American collectors. Although the extent of national utilization and international trade are not known, the species is considered in need of additional protection because of its popularity.

Obregonia denegrii Fric. This cactus is known from two valleys in Tamaulipas, Mexico. ESSA reports that it has been virtually extirpated from its type locality and is absent from other areas where it once was known to occur. Specimens in trade are usually obtained from the wild, although the extent of national utilization and international trade are unknown. (A Mexican authority reports that this species is threatened by illegal harvest for American entrepreneurs.)

Pelecyphora aselliformis Ehrenberg. The "hatchet" cactus is known only from one general area in San Luis Potosi, Mexico, but may be extinct in the wild due to harvest for horticultural purposes. ESSA recommends its inclusion on Appendix I because of its rarity, restricted distribution, and vulnerability to commercial trade.

Pelecyphora strobiliformis (Werdermann) Fric. This cactus (having no common name) is known from a few areas in Tamaulipas and Nuevo Léon. ESSA recommends the species for inclusion on Appendix I because of its rarity, restricted distribution, and high trade value. (A Mexican authority reports that overcollecting for American entrepreneurs is a major threat to the cactus.)

Primates

Cercopithecus diana (Linnaeus, 1758). Known as the Diana monkey or Diana guenon, this species occurs only in the coastal forests of West Africa from Gambia to Ghana (with unconfirmed reports of its occurrence in Cameroon and Zaire). The monkey inhabits the middle and upper levels of mature primary forest, only rarely coming to the ground from tall trees. Timber cutting is a serious threat to the species, along with hunting for food (especially in Liberia) and taking for zoological exhibition. ESSA urges its addition to Appendix I because trade

Continued on page 5

Whooper Recovery

Continued from page 1

Aransas Refuge) remains a threat.

Shooting took its toll on the population from 1870–1920, when more than 250 kills were recorded. The most recent loss to shooting was a single incident in 1968. The recovery plan recommends daily patrols and close management of sandhill crane and waterfowl hunting areas, where migrating whoopers may be present. Also, hunter education programs in these areas should include training for whooping crane identification.

Recovery Plan Recommendations

Among the recovery methods outlined in the Service's plan are habitat management, law enforcement, captive propagation and cross-fostering. Although the availability of nesting habitat in the Wood Buffalo Park does not appear to be limiting the whooper's expansion, the loss of wintering habitat will eventually prevent population increases. It is the opinion of the recovery team that the Aransas Refuge and nearby habitat can support at least 40 nesting pairs and associated subadults and birds of the year. (There are currently 76 birds in this population.) There is believed to be sufficient habitat on the remainder of the Texas coast to support several hundred whooping cranes, if they would use it.

The plan also calls for identification and protection of stopover sites along the migration route. Little is known about the consistency of site use by whoopers in migration. An important goal of the plan is to determine which areas are most often used and why.

Management practices should be applied first to areas designated as Critical Habitat or other areas of concern, according to the plan. Critical Habitat for the whooper (F.R. 5/15/78) consists of nine refuges and migratory stopover areas used by the two wild populations (See June 1978 BULLETIN). Included in the designation are Platte River bottoms between Lexington and Dehman, Nebraska, one of the principal resting and feeding areas for the whooping crane during its spring migration. It is one of the last suitable areas for whoopers to rest before the last leg of their 2,600-mile journey back to Wood Buffalo Park.

The recovery plan calls for captive propagation of whoopers to produce eggs which can be used in a cross-fostering program. Experimental efforts involving egg transfers have also shown signs of success. In a cooperative effort between our Service and the Canadian Wildlife Service (CWS), eggs from whooping crane nests in Wood Buffalo Park and those captive-produced at Patuxent are being transferred to wild sandhill crane *(Grus canadensis)* nests at Grays Lake Refuge. Once placed in the nest, the eggs are incubated and hatched, and the whooper chicks are reared and reintroduced into the wild by their sandhill crane foster parents.

Experiments at Patuxent indicate that parent-reared birds possess wild characteristics even after several years in captivity, and may be capable of making the transition from captivity to the wild. Depending on the results from release experiments with parent-reared sandhill cranes, these parent-reared whoopers will either remain with the captive flock at Patuxent, or be released at Grays Lake to bolster that population.

At present, 15 whoopers are located in the Rio Grande Valley, the wintering grounds of the Grays Lake sandhill cranes. Results from the Grays Lake experiment will aid future transplantings designed to establish new, self-sustaining populations and insure the long-range security of the whooping crane. Our Service and the CWS plan to implement a program to establish and manage additional whooping crane populations.

Additional objectives of the recovery plan include:

- reducing mortality. Little is known about whooper mortality. The extent to which accidents, shooting, human disturbance, and the availability of food or habitat during migration affect whooping cranes is unknown. A high mortality among sub-adults exists for unidentified reasons. Finding the reasons for these losses and a method of remedial management are high priorities in the recovery plan.
- determining desired distribution. The Whooping Crane Recovery Team will examine biological and other factors and make recommendations on the most appropriate distribution of the species. Not only will they attempt to determine a desired distribution and location for individual populations, but also the ultimate continental distribution of the whooping crane in relation to the biological needs of the species.
- improving public information. Because the whooping crane will never be an abundant species, preservation and eventual recovery will require the interest and concern of an informed public.

Photo by Rod Drewien

Immature whooping crane (foreground) with Grays Lake sandhill cranes on wintering grounds in New Mexico's Rio Grande Valley.

Species Considered For Appendix I

Continued from page 3

for purposes of display represents a potentially severe threat to declining populations. (The Diana monkey is listed as Endangered under the 1973 Act.)

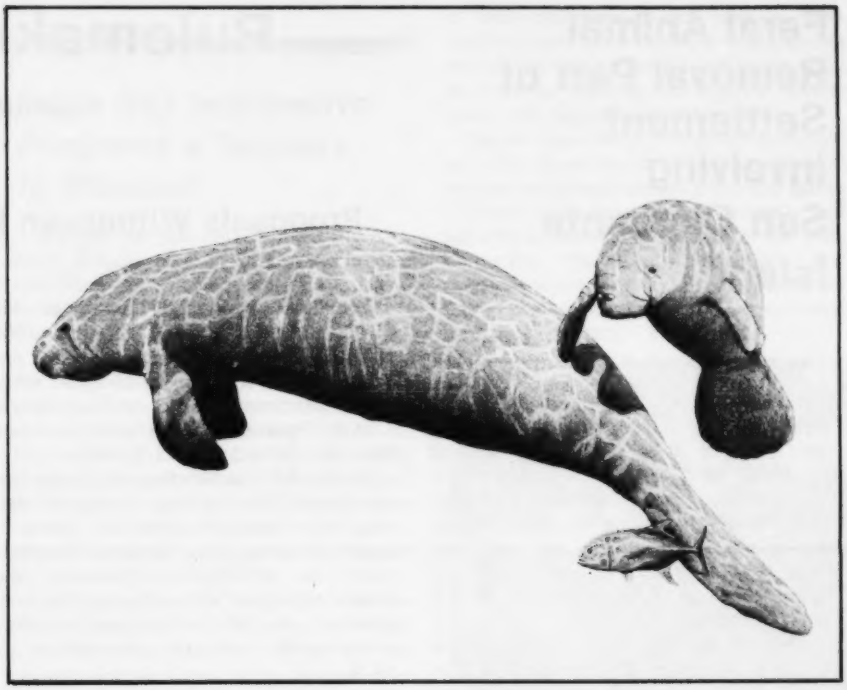
Lagothrix flavicauda (Humboldt, 1812). The yellow-tailed or "Hendee's" woolly monkey is native to portions of the Departments of Amazonas and San Martin in Peru, where it is limited to the montane rain forest. Its habitat is being cleared for agriculture, and is becoming increasingly accessible due to road construction. The species once occurred in such remote areas that only five specimens were known to scientists by 1926, and was not seen again until 1974 when an expedition found another five specimens. Locally, the monkey is hunted for food, and is exploited for use as a pet and in taxidermy. While international trade in this species is not known, ESSA notes that there has been extensive trade in Humboldt's woolly monkey *(Lagothrix lagothricha)*, a closely related species, for use as a pet. Peru protects the yellow-tailed woolly monkey as an endangered species.

Papio (-Mandrillus) sphinx (Linnaeus, 1758). The mandrill occurs in a limited area of West Africa, from the Sanaga River in Cameroon to the Congo River between Congo and Zaire, and eastward to the southwestern border of the Central African Republic. Although population estimates are not available, ESSA reports that the species is declining in Cameroon and Equatorial Guinea. The species, which lives primarily in forest areas, is hunted for food and killed for raiding crops, and is traded for zoological exhibition. Extensive deforestation has also reduced habitat essential to the mandrill's survival. (The species is listed as Endangered under the 1973 Act.)

Information and Comments Solicited

Persons having any information about the above species, including their distribution, population status, national utilization, international trade, potential threats to the species from trade, protection afforded them, or information on similar species, are invited to submit data and comments to the Director, U.S. Fish and Wildlife Service, Wildlife Permit Office, Washington, D.C. 20240, through March 4, 1980.

Following a review of available information, the Service will publish a notice of its determinations indicating which species will be the subject of formal proposals to the Convention parties.



Regulations to Benefit Manatees on Merritt Island, Chassahowitzka

Part of a continuing campaign to boost the recovery of Florida's Endangered sirenian, the Service has put in force new public use regulations designed to protect West Indian manatees *(Trichechus manatus)* and other protected species within the Merritt Island and Chassahowitzka National Wildlife Refuges.

An estimated 60 percent of all manatee deaths has been attributed to human-related activities, with two-thirds the result of boat-related accidents (see the January 1980, November 1979, and January 1979 BULLETINS). However, evidence has shown that, when given adequate time, manatees can move out of the path of approaching boats and avoid injury.

The Service's Merritt Island Refuge is used by a significant proportion of the declining manatee populations, according to recent surveys. The Service has therefore designated speed restrictions and closed areas within the refuge (to be enforced as soon as affected areas are properly posted) to minimize manatee mortality (F.R. 2/7/80). Under the new rules, water-related public use on Merritt Island will be permitted subject to the following restrictions:

- Boating speeds are restricted to "Idle Speed"* in Bairs Cove and KARS Marina.
- Boat speeds are restricted to "Slow Speed/Minimum Wake" ** in Haulover Canal, KARS Marina Channel, and Banana Creek.
- An area approximating two square miles in the Banana River east of the Saturn Barge Canal and south of the NASA Parkway is closed to all public use of motorized watercraft from April 1 through November 14 annually.
- Air thrust boats are not allowed on the refuge waters.
- Life preservers must be worn by persons in crafts less than 16 feet long while boats are under power in the Indian and Banana Rivers, and Mosquito Lagoon within the refuge.
- Boat launching on the refuge between sunset and sunrise is permitted only at Beacon 42 Fish Camp and Bairs Cove.

On the Chassahowitzka Refuge, where power boat speed restrictions are designed to protect manatees as well as three species of sea turtles and other listed birds and reptiles, the main channel of the Chassahowitzka River between the east refuge boundary and the Hernando County line has been designated a "Slow Speed/Minimum Wake" ** area from May 1 through August 31 in 1980 and 1981 (F.R. 2/22/80).

* The minimum speed that will maintain the steerage way of a motorboat.

** Any through-the-water speed (not over-the-bottom speed) less than 8 m.p.h. and slow enough that the boat is neither "planing" nor moving with an elevated bow.

Feral Animal Removal Part of Settlement Involving San Clemente Island

Following a suit filed last year against the U.S. Government by Fund for Animals *et al*, the U.S. District Court for the Central District of California has ruled on a settlement of parties, thereby enjoining the aerial shooting of goats, pigs, and deer that have been trampling and/or eating some of San Clemente Island's rarest animal and plant life.

One of the Channel Islands off the coast of southern California, San Clemente Island has been termed the most biologically distinctive coastal island owned by the United States. In past years, this unique habitat—supporting many species and subspecies that do not occur anywhere else—has been severely modified primarily due to the introduction of feral animals (as well as exotic plants). On August 11, 1977, the Service placed four plants, two birds, and a lizard (all indigenous to the island) on the list as Endangered or Threatened species in an effort to prevent further declines. (More than a dozen additional plant species are candidates for Federal protection on San Clemente.)

During recent years, the Navy has removed—through sport hunting, trapping, herding, and fencing—nearly 16,500 goats, 600 pigs, and 150 black-tailed deer from the island. Public outcry (culminating in the subject suit) abruptly halted the operation, however, and the surviving populations have since multiplied.

In a May 1979 biological opinion, the Fish and Wildlife Service stated that a comprehensive exotic animal and plant removal plan proposed by the Navy (involving aerial and ground shooting of all feral goals and deer, as well as the use of foot snares to capture pigs) would "contribute to the conservation of listed plant and animal species and the overall island ecosystem." According to the Service, "the complete removal of the last remaining individuals is of critical importance to the success of this eradication program, as population growth can increase rapidly and exponentially in response to release

Continued on page 8

Rulemaking Actions

January 1980

Proposals Withdrawn for Toad and Nine Fishes

Subsequent to its December 10, 1979, notice (see the January 1980 BULLETIN), the Service has announced the withdrawal of three additional proposals to list and designate Critical Habitat for nine fishes and one species of toad (F.R. 1/24/80).

Under 1978 amendments to the Endangered Species Act, proposed listings not finalized within two years of publication in the *Federal Register* must be withdrawn. However, the amended legislation authorized a suspension of all withdrawals (after enactment), or until November 10, 1979.

Expired proposal affected by this notice include:

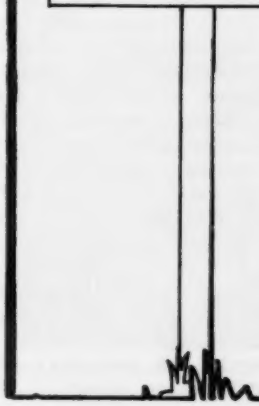
Proposed Threatened status and Critical Habitat for the black toad *Bufo exsul* (F.R. 3/11/77)

Proposed Endangered status and Critical Habitat for the
Cahaba shiner, *Notropis* sp.,
goldline darter, *Percina aurolineata*,
spring pygmy sunfish, *Elassoma* sp.,
and pygmy sculpin, *Cottus pygmaeus* (F.R. 11/29/77)

Proposed Endangered status and Critical Habitat for the
Waccamaw darter, *Etheostoma perlongum*,
Waccamaw silverside, *Menidia extensa*,
Waccamaw killifish, *Fundulus waccamensis*,
Barrens topminnow, *Fundulus sp.*,
Ouachita madtom, *Noturus lachneri* (F.R. 12/30/77)

Affected States include Alabama, Arkansas, California, Georgia, North Carolina, and Tennessee.

Public Hearing on Critical Habitat For the Desert Tortoise



In the interest of insuring full public participation on the reproposal of Critical Habitat for the Beaver Dam slope population of the Desert tortoise *(Gopherus agassizii)*, the Service will be scheduling a public hearing and reopening the public comment period.

Requests for a public hearing (as allowed under 1979 amendments to the Endangered Species Act) were received prior to and during the January 10 public meeting on the Service's Critical Habitat reproposal (F.R. 12/7/79).

We regret that details on the location and time of the hearing were unavailable as this BULLETIN went to press. For further information on the hearing and extended comment period, please contact Mr. Bill White in the Service's Salt Lake City area office (801/524-5634).

State Reports

Michigan Plants in Danger Exhibit on Tour

The University of Michigan Matthaei Botanical Gardens, funded by the Michigan Council for the Arts and several conservation organizations, has recently produced a traveling exhibit entitled "Michigan Plants in Danger." The exhibit explains problems affecting Michigan's 16 endangered, and 192 threatened, species—now legally protected.

Through a series of comparative photographs and narratives, the exhibit attempts to familiarize the audience with the concepts of plant endangerment and conservation. Five reasons why a plant may become rare, threatened, or endangered are addressed: habitat destruction, exploitation by man, habitat restriction, distribution patterns, and devastation by introduced and natural enemies. The concluding section provides suggestions on how concerned citizens may take action to protect plant species that are in danger. These include reestablishment of selected species, membership in botanically-oriented groups, and support of appropriate legislation. (A color brochure also accompanies the exhibit.)

For most of the first year, the exhibit will be scheduled for month-long visits to larger Michigan nature centers and shown at statewide special events. Eventually it should be available to any interested Michigan group. (The Matthaei Botanical Gardens staff hopes that all States may have the opportunity to develop similar displays. They have learned a great deal about production options and are glad to pass on their knowledge to other botanical conservationists.)

Photo by Bob Kalmbach

"Michigan's Plants in Danger" exhibit in lobby of Matthaei Botanical Gardens, University of Michigan.

Eagle Day Interpretive Programs a Success in Missouri

During the last two winters the Missouri Department of Conservation has offered a series of special "Eagle Day" Interpretive Programs at various locations across the state.

"Bald eagles are an ideal subject for programs like this," Larry Gale, Director of the Department says. "They have predictable wintering habits, so they're easy for people to see, while naturalists can inform people about endangered species philosophy, pesticide pollution, habitat destruction, and the role of predators like eagles in the environment."

The programs have been tremendously popular with Missouri's public. The first year nearly 1100 people attended Eagle Days even though several were cancelled or postponed due to winter storms.

The Department handed out a participant survey at Eagle Days to get a handle on just who came and what they got out of it. Results of the survey showed broad-based support for this type of program. All kinds of people came—hunters made up 32% of the participants and fishermen 67%. That's over twice what would have been expected from a straight cross-section of the Missouri population. In addition, 17% of the participants classified themselves as birders, 61% classified themselves as occasional bird watchers and 26% said they belonged to one or more wildlife interest groups. It was particularly interesting to note that 5% indicated no previous interest in wildlife at all, and over half of the participants had never before seen an eagle.

The eagles themselves were more or less oblivious to the people. Naturalists were able to show participants many aspects of eagle behavior such as fishing, feeding on injured waterfowl, and aggressive interactions.

Eagle Days have proven so successful, the Department is putting several similar programs on the planning table. "This kind of program has proven itself beneficial above and beyond the participants themselves through the media and word-of-mouth support they have generated for the Department and its programs," Gale said.

Missouri Department of Conservation photo

Paul Price of Dickerson Park Zoo, Springfield, Missouri, with "Omega," a rehabilitated female bald eagle exhibited during Missouri Department of Conservation "Eagle Days."

New York Fish Surveys

New York's Department of Environmental Conservation has tentatively identified 56 species of fish that are "of special concern" according to available records.

Under the direction of Dean Bouton, the Department's endangered fish program has contracted two major survey efforts (through Fiscal 1981) to determine if listing is warranted for any of the State's declining fishes.

(Although believed extinct, the blue pike *(Stizostedion vitreum glaucum)* and longjaw cisco *(Coregonus alpenae)*—which occurred in Lake Erie and Ontario—remain protected in New York. The Endangered shortnose sturgeon *(Acipenser brevirostrum)*, a marine species occurring along the Atlantic Coast, has been the subject of recent power plant impact studies in the State.)

Feral Animal Removal

Continued from page 6

from inter- and intra-specific competition." (The Service opinion further stressed the importance of a rigorous exotic plant removal program to complement feral animal removal, thereby boosting the recovery of native fauna and flora.)

Under the January 23 order, 60 percent of all feral animals are to be counted and line-trapped within a 90-day period (with the remainder taken within one year) and removed from the island by barge. The order further calls for the preparation of an Environmental Impact Assessment by the U.S. Navy on the effects of its military operations on all forms of plant and animal life, archeological ruins, and Indian burial sites on the island.

The Navy is expected to reinitiate consultation on its new plan in the near future.

BOX SCORE OF SPECIES LISTINGS

Category	Number of Endangered Species			Number of Threatened Species		
	U.S.	Foreign	Total	U.S.	Foreign	Total
Mammals	35	251	286	3	21	24
Birds	67	145	212	3		3
Reptiles	11	50	61	10		10
Amphibians	5	9	14	2		2
Fishes	29	11	40	12		12
Snails	2	1	3	5		5
Clams	23	2	25			
Crustaceans	1		1			
Insects	6		6	2		2
Plants	49		49	7	2	9
Total	228	469	697	44	23	67

Number of species currently proposed: 35 animals (no plants)
Number of Critical Habitats listed: 35
Number of Recovery Teams appointed: 66
Number of Recovery Plans approved: 31
Number of Cooperative Agreements signed with States: 34 (fish & wildlife) 3 (plants)

January 31, 1980

New Publications

Proceedings of the First South Carolina Endangered Species Symposium is the first attempt to list and describe the status of threatened and endangered plants and animals in the State. This 200 page book is based on a 1976 symposium held in Charleston. Copies are available from the Nongame-Endangered Species Section, South Carolina Wildlife and Marine Resources Department, P.O. Box 167, Columbia, South Carolina 29202, for $6.50 plus $.50 for handling.

The January 1980 issue of *Rhodora* contains the proceedings of the symposium, "Rare and Endangered Plant Species in New England," which was sponsored by The New England Botanical Club. Order from NEBC Symposium. Department of Botany and Plant Pathology, Nesmith Hall, University of New Hampshire, Durham, New Hampshire 03824. Make checks payable to NEBC symposium. The price is $8.00.

Correction—Bobcat Exports

In the December 1979 BULLETIN, we inadvertently listed South Dakota as one of the States from which exports of bobcat pelts taken during the 1979–80 season had been halted under a December 12 U.S. District Court order. Such exports from South Dakota *are allowable* under the terms of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

February 1980, Vol.V, No. 2

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March 1980, Vol. V, No. 3

ENDANGERED SPECIES TECHNICAL BULLETIN

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SERVICES ADOPT NEW LISTING REGULATIONS

Procedures for listing, delisting, and relassifying species, determining Critical Habitat, the handling of petitions, and other related activities called for under the amended Endangered Species Act of 1973 have been adopted with the publication of final "Section 4" regulations (F.R. 2/27/80).

Issued jointly by our Service and Commerce's National Marine Fisheries Service (the two agencies respectively charged with administering the law for terrestrial and marine species), these final rules implement many of the changes and additional requirements imposed by 1978 and 1979 Amendments to the Endangered Species Act (see the January 1980 and October 1978 BULLETINS). The regulations had been proposed on August 15, 1979 (see the September 1979 BULLETIN), although minor subsequent changes under the 1979 amendments have also been incorporated in this comprehensive document.

We will review significant sections in the following pages, although you may wish to order the complete text of the regulations (supplies are limited) from the Office of Endangered Species, U.S. Fish and Wildlife Service, Washington, D.C. 20240.

Listing and Related Definitions

Essentially all provisions pertaining to the listing process (with the exception of Sections 17.11, 17.12, 17.13, and 17.94, which actually include the U.S. Lists of Endangered and Threatened Wildlife and Plants and designated Critical Habitats) have been incorporated under a new Part 424 of Title 50 of the Code of Federal Regulations.

Definitions under this new part include standard language provided under the 1973 law as well as terms reflecting changes brought by the recent amendments. The following definitions for Endangered and Threatened remain unchanged:

Endangered: A species which is in danger of extinction throughout all or a significant portion of its range.

Threatened: Any species which is likely to become an Endangered species within the foreseeable future

continued on page 3

U.S. Fish and Wildlife Service Photo

One of three dusky seaside sparrows captured last year on the St. Johns National Wildlife Refuge, this bird may soon be part of an intense breeding project geared to recovering its dwindling numbers. (See our separate "Special Report.") *Human efforts may involve dusky semen preservation and artificial insemination, with experimentation soon to be underway on surrogate sparrows at the Patuxent Wildlife Research Center.*

See Story Page 4

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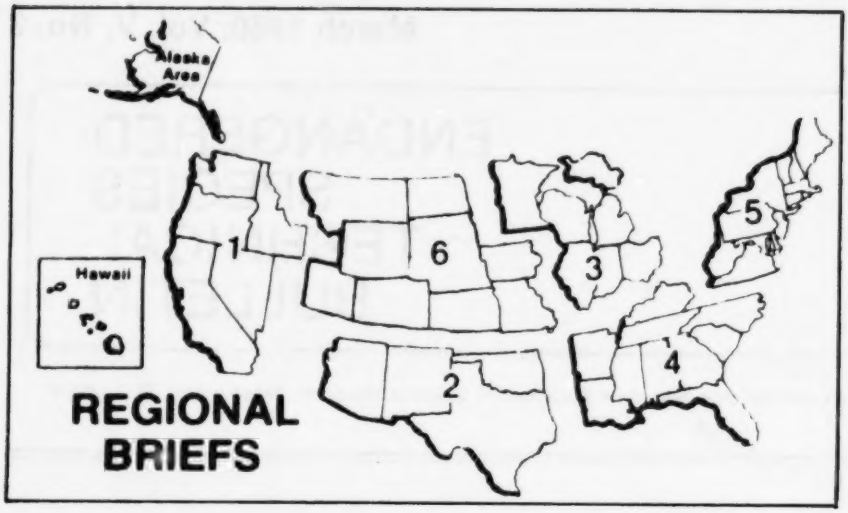

Endangered Species Program regional staffers have reported the following activities for the month of February.

Region. 1. The Antioch Dunes Recovery Plan (covering Lange's metalmark butterfly *(Apodemia mormo langei)*, Contra Costa wallflower *(Erysimum capitatum* var. *angustatum)*, and Antioch Dunes evening-primrose *(Oenothera deltoides* ssp. *howellii)* was submitted to Washington for final approval. The April 1980 BULLETIN will feature a report on the Service's recent acquisition of this unsettled ecosystem.

The Portland Chapter of the Audubon Society, along with the Fish and Wildlife Service, Oregon Department of Fish and Wildlife, and National Wildlife Federation, sponsored a bald eagle workshop in Klamath Falls, Oregon. About 200 people attended, including representatives from six western States. Workshop participants went to the Klamath Basin, which has the largest wintering concentration of bald eagles *(Haliaeetus leucocephalus)* in the lower 48 States.

Region 2. The San Bernadino Ranch Renovation and Management Plan was initiated by eliminating exotic mosquito fish *(Gambusia affinis)* to protect native Endangered Gila topminnow *(Poeciliopsis occidentalis)* from competition or hybridization. Staff members met with the Arizona Bureau of Geology and Mineral Technology regarding potential impacts of the renovation plan on their projects, and geothermal exploration north of the ranch (which is located in southeastern Arizona, near the Mexican border).

Jack Woody served as U.S. representative and panel member at the Mexican Symposium on Wildlife Management Programs in Desert Environments.

An interagency cooperative agreement was reached on studying nesting bald eagles on the Salt and Verde Rivers in Arizona. Participants in the agreement are our Service, Salt River Project, Arizona Water Commission, Rocky Mountain Range and Forest Experiment Station of the Forest Service, the Maricopa Audubon Society, Water and Power Resources Service, and Arizona State University, which will be doing the actual work.

Region 4. Regional and other Service personnel participated in a public meeting at Gadsden, Alabama, on February 7 to discuss listing of the green pitcher plant *(Sarracenia oreophila)* as Endangered (effective April 7, 1980). There were nearly 200 people in attendence at the meeting, where time was devoted to the presentation of formal statements for the record as well as to question and answer sessions. While a number of concerns were expressed over the listing, most were prompted by misconceptions of the Service action. (For example, no Critical Habitat has been designated.) A number of people questioned the basis for the listing, but no new biological or other data was presented. (A report of the public meeting is contained in the March 24, 1980, *Federal Register.)*

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U.S. Fish and Wildlife Service Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Iowa, Kansas, Missouri, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Alaska Area:** Alaska.

The ENDANGERED SPECIES TECHNICAL BULLETIN is published monthly by the U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

On February 5, 61 snail darters *(Percina tanasi)* out of 106 being held at Tennessee's Eagle Bend Fish Hatchery died of apparent gas bubble disease. The survivors were moved to Morristown State Hatchery where other darters were placed after being removed from the Little Tennessee River prior to the closure of Tellico Dam (see the October 1979 BULLETIN).

Region 6. A meeting held in Billings, Montana, on threatened and endangered plants resulted in the formation of an Endangered Species Committee aimed at improving communication between botanists and providing direction and impetus for the State's endangered and threatened plant program. The committee consists of Federal, State, and university personnel.

SERVICES ADOPT NEW LISTING REGULATIONS

continued from page 1
throughout all or a significant portion of its range.

Of interest, however, are several new or revised definitions:

Critical Habitat: (1) The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (i) essential to the conservation of the species and (ii) which may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by a species at the time it is listed upon a determination by the Director that such areas are essential for the conservation of the species.

Species*: Any species or subspecies of fish or wildlife or plant, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature. (Excluded are those species of the Class Insecta determined by the Director to constitute a pest whose protection under the provisions of the Act would present an overwhelming and overriding risk to man.)

Public hearing: An informal hearing to provide the public with the opportunity to give their comments on a proposal to designate Critical Habitat and, if appropriate, the accompanying proposal to list a species.

Public meeting: An informal meeting between Service representatives and the public that permits an exchange of information on a proposed rule.

Special management considerations or protection: Any methods or procedures useful in protecting physical and biological features for the conservation of listed species.

Conservation: To use and the use of all methods and procedures which are necessary to bring any Endangered species or Threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Listing Criteria

Under slightly revised criteria, a species may be listed on the basis of the best scientific and commercial data available (after a review of the species' status) because of any one or more of these factors:

(1) The present or threatened destruction, modification, or curtailment of its habitat or range;

(2) Utilization for commercial, sporting, scientific, or educational purposes at levels that detrimentally affect it;

(3) Disease or predation;

(4) Absence of regulatory mechanisms adequate to prevent the decline of a species or degradation of its habitat; and

(5) Other natural or manmade factors affecting its continued existence.

(The fact that a species is listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora or similar international agreements may also constitute evidence that a species should be considered for listing as Endangered or Threatened.)

A species may be removed from the U.S. List based on the best available data indicating either its (1) extinction, (2) recovery, or (3) a finding that original data for classification were in error.

Critical Habitat Determination

As provided under 1978 Amendments to the Act, Critical Habitat shall be designated, *to the maximum extent prudent*, at the time a species is listed. Under the new regulations, proposed Critical Habitat areas shall be specified at the time a species is proposed for listing *unless* (1) identification of Critical Habitat areas would be expected to increase the degree of threat to the species or (2) such designation would not be beneficial to the species.

Under the regulations, all physiological, behavioral, ecological, and evolutionary requirements essential to the conservation of the species and which may require "special management considerations or protection" will be considered in determining Critical Habitat. These requirements may include:

1) Space for individual and population growth and for normal behavior;

2) Food, water, air, light, minerals, or other nutritional or physiological requirements;

3) Cover or shelter;

4) Sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and generally,

5) Habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of listed species.

In considering the Critical Habitat designation, the Services will focus on the biological or physical constituent elements within the defined area which are essential to the conservation of the species, and will identify known primary constituent elements (such as roost or feeding sites, vegetation types, etc.) along with any Critical Habitat designation.

All significant activities which would either affect an area considered for designation as Critical Habitat or

continued on page 8

* In determining whether a particular taxon is a population or species for the purposes of the Act, the Services will rely on standard taxonomic distinctions and the biological expertise of the Service and the scientific community concerned with that group of taxa.

EXTINCTION OR SURVIVAL?

SEMEN PRESERVATION AND ARTIFICIAL INSEMINATION COULD MAKE THE DIFFERENCE

Thirty-nine years ago, when the total population of whooping cranes *(Grus americana)* in existence dropped to a critical low of 21 birds, no one ever dreamed that our human efforts would put this species back on the road to recovery. But, thanks to specialists bent on halting its decline, 119 of these majestic birds survive in North America—some in their original migratory range, others as part of a second experimental flock, and still another 24 in captivity as part of a Service incentive to boost the crane's dwindling breeding success.

Captive propagation was initiated in 1967 to bolster the wild whooper population—still vulnerable despite intense habitat management on its behalf. Cranes in residence at the Patuxent Wildlife Research Center in Maryland were not producing fertile eggs when Dr. George Gee started as research physiologist for the Service one year later. While semen production appeared normal, most of the birds simply were not copulating—a behavioral rather than physiological problem.

Without artificial insemination—begun at that time as a necessity to maintain crane propagation—our captive breeding efforts would have bordered on failure.

Techniques Improving Fertility

Used as a successful propagation tool since 1969, artificial insemination is now increasing the fertility of whooping cranes, Mississippi sandhill cranes *(Grus canadensis pulla)*, Aleutian Canada geese *(Branta canadensis leucopareia)*, and other Endangered wildlife under the Service's Endangered Wildlife Research Program.

Working primarily with birds, Gee and his co-workers have perfected a variety of techniques for collecting semen—including massage, electromechanical stimulation, artificial vaginas, and even natural mating attempts using teaser animals or (for imprinted animals) humans. The semen is then inseminated using one of two principal methods: everting the oviduct, with the sperm inserted into the vagina, or (without eversion of the oviduct) depositing semen directly into the middle chamber of the cloaca.

Through their methods, all reproductive whoopers and Mississippi sandhills in captivity at Patuxent have been artificially inseminated. Fertility rates of 85 percent with fresh, uncontaminated semen have been consistently achieved with formerly infertile pairs.

Pioneers in "Cryobiology"

With the captive breeding program well underway, Gee soon recognized the need to preserve a stockpile of crane semen—not only to supplement quantities produced by captive males, but also to insure the maintenance of natural genetic diversity which can be lost through inbreeding.

Working with Dr. Tom Sexton of the Department of Agriculture's Beltsville Agricultural Research Center, Gee was able to apply Sexton's methods—developed in 1976 for the cryogenic preservation (storage in the frozen state) of poultry semen—in his own work with cranes. Within two years, using greater sandhill cranes *(Grus canadensis tabida)* as surrogates, Gee and Sexton were able to unlock the magic formula. In 1978, artificial insemination of greater sandhills with semen frozen for nearly two months resulted in fertile eggs (6 out of 27 laid) and the production of three healthy chicks.

Using semen collected prior to and during egg production at Patuxent, Gee has since perfected techniques for freezing the genetic material of whoopers and Mississippi sandhill cranes, and the results have shown promise. While fertility rates have not been as high as those achieved using fresh semen, he has attained 30 percent fertility (with five birds) using frozen-thawed semen.

Gee is not satisfied with these lower success rates, however, striving for 60 percent fertility as the minimum acceptable level for propagation purposes. "There really isn't any theoretical reason for the frozen-thawed rates to be any different from the fresh. The obvious solution may be to increase sperm numbers per insemination." Gee thinks they may have dropped below the "critical fertile level" (likely between 50,000 and 100,000 sperm for whoopers and sandhills). Not all sperm survive freezing, however, so they hope to boost fertility this year by increasing the dose and improving insemination techniques. With estimates of 35 to 60 percent sperm survival rates, the researchers will be inseminating both whoopers and sandhills using a full tube of semen (containing three ejaculations) to insure adequate sperm levels.

Genetic Diversity: Key to Survival

As we now know, the adaptability—if not the survival—of an animal population inevitably depends upon the maintenance of a diverse gene pool. Although captive propagation may insure the survival of a species for many generations, it leads eventually to loss of the genetic diversity that has proven essential to survival of the species throughout its evolution.

The maintenance of all alleles [those genetic components of the chromosome carrying inheritable information] or "heterogenicity," in some balance similar to that which occurred before the populations declined can be vital. Although they may be represented in small numbers, a major change in the environment could suddenly favor certain alleles—and the natural evolutionary process would then select for the expansion of this small proportion. In captivity, when you have selected certain individuals from a population, this normal distribution disappears and some genetic variation will be lost. Although this can be caused by inbreeding, loss in variation of captive populations also results simply because the

U.S. Fish and Wildlife Service Photo

Artificial insemination proved indispensible to the captive propagation of whooping cranes at Patuxent, where eggs laid by captive whoopers without insemination were infertile. Here, Gee and Glen Smart (formerly with Patuxent's Endangered Wildlife Research Program, now based in Washington) inseminate one of the first whoopers to produce fertile eggs at Patuxent, with semen from her mate. (Semen is collected and the females inseminated three times a week, using frozen semen only when the fresh is not available.)

environment can no longer "select" for adaptive alleles.

The ideal way to maintain diversity in captive flocks is through reintroducing wild animals—or, if not the animals themselves, then their genetic material. "When we see a population in rapid decline, we should go out and get as much semen as possible and preserve it." Then, Gee says, "we could go back to our captive flock and reintroduce that semen, which is still representative of that original population that was much larger only a short time ago." Once collection and freezing methodologies are worked out, sperm taken from just a few different individuals each year would allow reintroduction of a broad genetic base back into a population—diversity that could later mean the difference between extinction or survival.

Hope for the Dusky

Gee hopes to work this year to perfect methods for the collection, insemination, and preservation of sea-

continued on page 6

SEMEN PRESERVATION AND ARTIFICIAL INSEMINATION

continued from page 5

side sparrow semen (using the Scott's seaside sparrow, *Ammospiza maritima peninsulae*, as a surrogate) for eventual application with the dusky seaside sparrow *(A. m. nigrescens)*. Possibly the first Endangered passerine bird to become part of a captive breeding project (see our April 1980 "Special Report"), the dusky's fate may depend largely on success with these techniques, should female adults or nestlings be found this year.

While the semen volume for individual sparrows would be small (.01 to .05 ml), Gee believes samples can be prepared for frozen storage and that the bird's physiology could even work to his advantage. "Because of their small body size, they have apparently become adapted to accumulate large doses of semen right where they need it." The male duskies have a cloacal protuberance, where the vas deferens is looped around the dorsal lip of the cloaca. Semen may be easily taken by massage from the swollen protuberance during the breeding season—a practice already accomplished in the field.

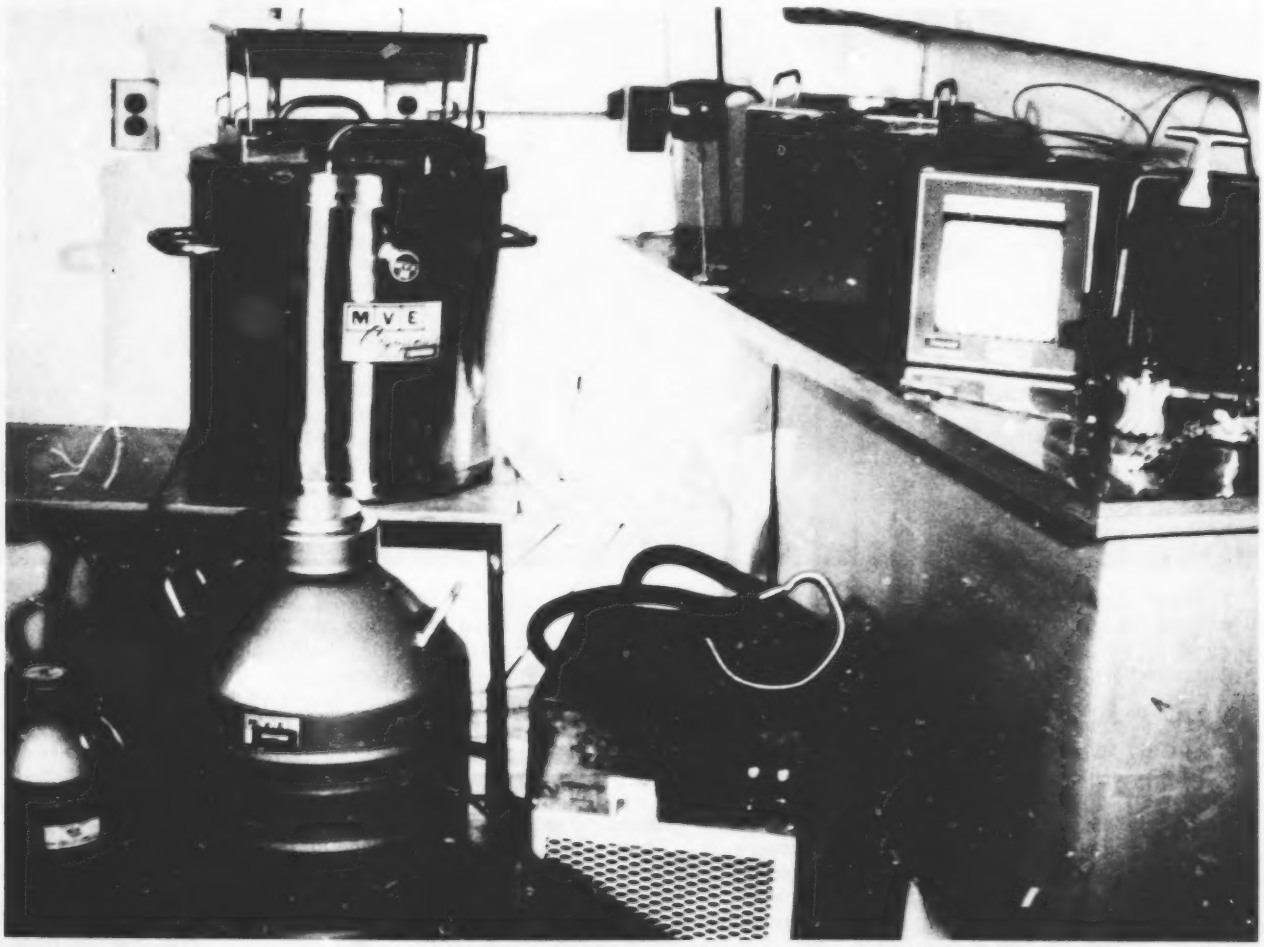
Although longevity should not be a problem (one dusky has lived for 9 years), Gee fears it could take 3 or more years to learn how to successfully freeze dusky semen. He hopes to accelerate the process, perhaps cutting the time in half by bringing his surrogate seasides into production more frequently through day-length and temperature manipulations.

If all goes well, freezing techniques could then be more readily developed for other Endangered passerines like the Cape Sable seaside sparrow (A.m. *mirabilis)*, the dusky's cousin from the Florida Everglades.

Sperm Bank: The Best Investment

For the dusky, the California condor *(Gymnogyps californianus)*, and many other critically Endangered species, time is indeed the prime obstacle to recovery. But Gee and others like him believe we can buy time—through little investment and effort—by storing the

The equipment necessary to freeze and store semen from whoopers and other birds requires little space in Gee's laboratory at the Patuxent Center. Freezing vessels, equilibrators, freezing units, and storage tanks are relatively inexpensive, and much of the equipment necessary for semen collection and freezing may be carried in the back of a station wagon.



U.S. Fish and Wildlife Service Photo

genetic material so critical to a species' survival.

Many types of cryogenic tissue storage have been developed in the last 40 years, with most designed for practical use in human and domestic animals. Viable sperm have been recovered from frozen semen in man, cattle, dogs, cats, elephants, bison, horses, trout, pigs, sheep, goats, chickens, turkeys, camels, moose, deer, llama, yak, monkeys, chinchilla, and bears.

Tissues can be preserved with little or no loss of vigor for decades, even centuries, according to Gee who says there should not be any decrease in sperm viability as long as its organic constitutents remain frozen in place—generally at −196°C.

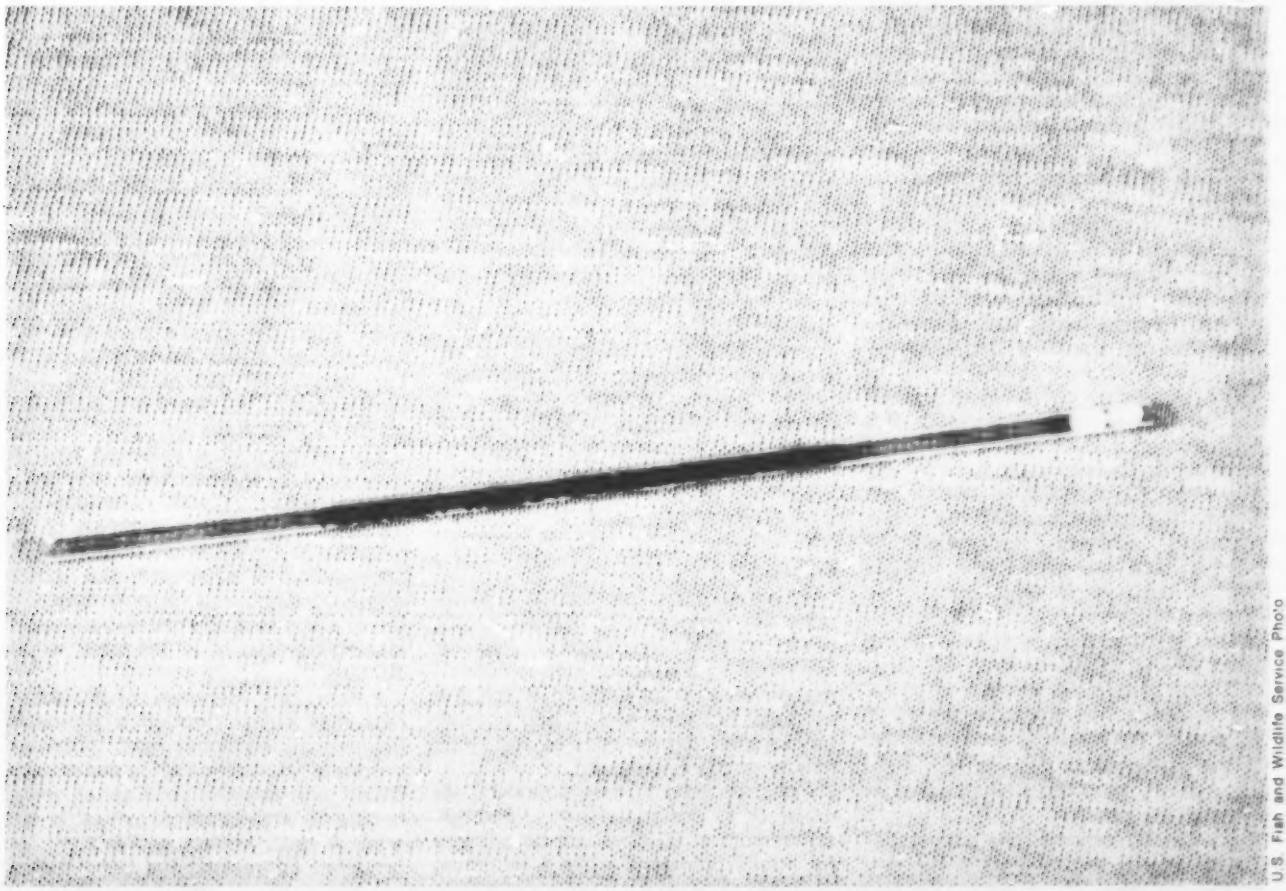
Of all the techniques used in endangered species conservation, a semen bank would be the least damaging to a wild population and perhaps the best safeguard. Preservation of an endangered population could, after all, depend on our ability to help it along by maintaining its genetic diversity in times of environmental stress. "In our particular situation, in working with Endangered species," Gee says "we should consider all the possibilities and think about how we can make use of developing technologies." For example, he advises the frozen storage of tissues from the duskies for use later, should we ever learn to clone them [i.e., reproduction of duplicate organisms by tissue culture].

A universal storehouse of semen from declining species could be one of our best investments toward the long-term conservation of Endangered populations. While techniques for obtaining, handling, and preserving semen would have to be worked out for each species, Gee feels the time for establishing a centralized Endangered species sperm bank has arrived. "How thankful we may be to have stockpiled that essential source of diversity—perhaps our last hope for restoring a population as an adaptable part of a rehabilitated environment."

Without it, we might some day look back on future failures as we have with the passenger pigeon—a species apparently ideally suited for captive propagation. While the passenger pigeon has been lost to mankind, it is not too late to know the importance of maintaining these irreplaceable gene pools—materials that could later be used when the techniques are there.

As Gee points out, "If you had it, and it did happen, wouldn't you feel good."

Great care must be exercised in the handling of semen as freezing rates are critical to viability. Once collected and diluted, semen is cooled to near freezing for up to 4 hours, then is further diluted with cryoprotectants and siphoned into a plastic straw (like the one above) labelled for each donor bird. After a brief equilibration period, the 50°C sample is cooled to −20°C at the rate of 1°C per minute, then to −80°C at 50°C per minute, and finally to −196°C as rapidly as possible, where it is stored in liquid nitrogen. (The samples are gradually thawed before insemination.)



U.S. Fish and Wildlife Service Photo

SERVICES ADOPT NEW LISTING REGULATIONS

continued from page 3

which are likely to be affected by such a designation will be identified in any Critical Habitat proposal. The "reasonably probable economic and other impacts" of such a designation shall also be considered, and the Services may exclude affected areas from the designation upon a determination that "the benefits of such exclusion outweigh the benefits of specifying the area as part of the Critical Habitat" (so long as failure to include such an area will not result in the extinction of the species—based on the best available data).

Critical Habitats will be defined using reference points and lines found on standard topographic maps, with the names of State(s), county(ies), or other local governmental units within which the designated area is located (although such political references shall not be construed to constitute the boundaries of the area). When a number of suitable habitats are located in close proximity, an inclusive area may be designated as Critical Habitat.

Critical Habitat shall be designated outside the geographical area presently occupied by the species only when determined necessary to ensure the conservation of the species.

Petitions, Data Sources, and Status Reviews

The Services shall review the status of a species prior to proposing a rule to list or remove a species, in consultation as appropriate with affected States, Federal agencies, interested organizations, persons, and country(ies).

Any interested person may petition the Services to review the status of a species with a view toward listing (or delisting or reclassification) under the Act. Petitions must be in writing and contain the date submitted, the name, signature, address, and telephone number, and the association, institution, or business (if any) represented by the petitioner.

The Services must acknowledge receipt of the petition within 30 days, and then determine whether substantial evidence has been presented in support of the measure recommended by the petitioner. In making such a determination, the Director shall consider whether the petition:

(1) Clearly indicates the administrative measures recommended, the scientific and any common name of the species involved, and if appropriate, the precise area recommended as Critical Habitat:

(2) Contains detailed narrative justification for the recommended measure, describing, based on available information, the past and present numbers and distribution of the involved species, the particular threats confronting the species, and the features and importance of any recommended Critical Habitat;

(3) Indicates any beneficial or adverse effect on the species of designating Critical Habitat;

(4) Provides information on the status of the species over a significant portion of its range; and

(5) Is accompanied by appropriate supporting documentation such as a list of bibliographic references, reprints of pertinent publications, copies of written reports or letters from authorities, and maps, as appropriate.

If adequate evidence has not been presented, the petition shall be denied with explanation within 90 days. If, however, the Director finds that substantial evidence has been presented, he will: (1) promptly announce such a determination in the *Federal Register*, and (2) conduct (and publish in the *Federal Register*) within 90 days of receipt of the petition a status review of the species, indicating how the Service expects to proceed with the action. If the petition pertains only to Critical Habitat or a special rule for the conservation of a species, the Service will promptly conduct a review to determine the appropriateness of the requested action.

If the Director finds that the action requested by a petitioner appears warranted, but that available evidence is not definitive enough to justify a proposal, then he may publish a Notice of Review soliciting comments and additional data to determine if indeed such a proposal is warranted.

Proposals

When sufficient information is available, the Services will publish a proposed rule in the *Federal Register* summarizing the action under consideration as well as data on which the proposal is based and, if appropriate, factors affecting the species and likely effects of the rulemaking.

For proposals to list, reclassify, remove, or to designate Critical Habitat, a minimum of 60 days will be allowed for public comment, while a minimum of 30 days will be allowed for public comment on all other proposed rules.

The Governors of all affected States and the governments of foreign countries in which the species occurs (or whose citizens harvest such species from the high seas) will be notified of the proposal and allowed 90 days to submit comments.

For all rules proposing listing, reclassification, delisting, or the designation of Critical Habitat, the Services shall offer the substance of the proposal for publication in appropriate scientific journals or newsletters.

For proposals to list, remove, or reclassify species (where no Critical Habitat is proposed), a public meeting shall be held within or adjacent to the affected area if requested within 45 days after date of publication in the *Federal Register*. (The specifics of such a meeting would then be published as a notice in the *Federal Register.)*

Any proposal specifying Critical Habitat must also contain a map of the proposed area and, to the maximum extent practicable, a brief description of activities that might occur in the area that may adversely modify such habitat or may be affected by such a designation.

A public meeting shall be held on all Critical Habitat proposals within, or immediately adjacent to, the proposed area within each affected State. (Notice of such meetings will be published in the *Federal Register.)* A public hearing is to be held after the public meeting in each affected State, if requested in writing no later than 15 days after the public meeting. The hearing would then be held promptly, but usually not sooner than 15 days after notice of the hearing is published in the *Federal Register*.

For all proposals involving Critical Habitat, the Director will (1) notify Federal agencies with jurisdiction in the area; (2) publish a summary of the proposal in a general circulation newspaper within or adjacent to the habitat within 30 days; and (3) give notice of the rule and related impact analyses to local governments in the area within 30 days.

Finally, the Services shall gather (and may solicit through a Notice of Review) all economic and other appropriate information on impacts associated with any Critical Habitat designation on significant activities in the area. A draft impact analysis will be prepared addressing the beneficial or

continued on page 10

CONDOR RECOVERY PLAN REVISED

Continuing its conservation efforts on behalf of the critically Endangered California condor *(Gymnogyps californianus)*, the Service has approved a revised recovery plan for the species. The revised document updates the original California Condor Recovery Plan, approved in 1975, by incorporating a contingency plan for captive propagation and release to bolster exising condor populations and to establish new ones. The prime objective of the plan is to reach a minimum of 100 birds in the wild, with production equalling or exceeding mortality. Current wild population estimates are at 25 to 30 birds.

Historically, the California condor occurred along the Pacific coast from British Columbia to northern Baja California, Mexico. Although never abundant within historic times, the condor was widespread and regularly seen in the Nineteenth and early Twentieth Centuries. No population estimates are available prior to the 1940's, when the total was thought to be about 60 (apparently an underestimate since the population was figured at 50–60 condors in 1970—apparently representing a significant decrease from the 1950's).

Today, the condors occupy a wishbone-shaped area in the mountains of central California from Santa Clara and Fresno Counties south to Ventura and Los Angeles Counties.

Steady human encroachment has crowded the condor out of portions of its range. As human presence increased, so did habitat destruction, shooting, and egg and specimen collecting. (Environmental contamination may have also contributed to the species' decline.) A minimum of 288 condors and 71 eggs were taken between 1792 and 1976, with as many as 111 condors and 49 eggs taken between 1881 and 1910 alone. This high mortality far exceeded the normally low productivity of the condor (with a single egg produced every other breeding season).

The road to recovery for the California condor will be a long one. According to the recovery team, condor populations are so low that the only hope for the species is through captive propagation and release, with attempts at reestablishment as much as 20 years away. The plan calls for capture and marking and possible retention of a numbers of condors for captive propagation between September 1980 and March 1983. A chief criticism of this procedure, the team notes, is the uncertain success in releasing captive-raised condors into the wild. However, studies with turkey and black vultures have demonstrated possible procedures for releasing California condors. This spring, a number of captive-reared Andean condors *(Vultur gryphus)* will be released in Peru. The recovery plan calls for continued management of the captive flock of Andeans until propagation and release techniques are perfected.

To help insure the success of future releases, the recovery plan calls for identification and protection of present condor habitat and possible release sites. Other recommended actions include:

(1) prohibiting motorized (including aircraft) activity and blasting in the vicinity of condor nest sites. (All recently used nests are in the Los Padres National Forest.)

(2) restricting all human use within 0.5 miles of condor nest sites;

(3) developing management plans for condor nesting, roosting, and feeding habitats;

(4) encouraging open-space preservation and a continuing livestock economy through the condor range;

(5) encouraging land managers to leave dead livestock on the range where it is available to condors (which only eat dead animals);

(6) researching the effects of environmental contaminants on condor survival and reproduction;

(7) monitoring the condor population; and

(8) conducting a public information program.

For more information on California condor recovery, see the January 1980 BULLETIN and our May 1979 *Special Report*, "Last-ditch Contingency Plan Seen as Only Hope for California Condor."

SERVICES ADOPT NEW LISTING REGULATIONS

continued from page 8

detrimental economic and other impacts of the Critical Habitat designation, and will be available to the public upon publication of the proposal.

Final Rules

After consideration of all data and comments received, the Director will publish either a final rule or a notice of withdrawal of the proposal in the *Federal Register*.

Final rulemaking documents will summarize all comments received on the proposal as well as all data upon which the rule is based and likely effects of the ruling. For listing, delisting, reclassification, and Critical Habitat rulings, a summary of factors affecting the species will also be included. Critical Habitat determinations will contain descriptions of the boundaries of designated areas and appropriate maps, and will briefly describe activities that might adversely modify the habitat or be impacted by such a designation.

Prior to finalizing Critical Habitat, a final impact analysis shall be prepared (incorporating all information and comments received) to analyze and discuss beneficial and detrimental economic and other impacts of possible Critical Habitat designations on significant activities in the area. This analysis will then form the basis for the Director's decision as to whether to exclude any area from the Critical Habitat—if determined that the benefits of excluding such an area outweigh the benefits of designating the area as Critical Habitat.

A final regulation adding a species to the U.S. List must be published not later than 2 years after such a rule was proposed. Otherwise, the proposal must be withdrawn (with notification in the *Federal Register* not later than 30 days after expiration of the period). Another proposal to add a species to the list which had been the subject of a withdrawn proposal may only be published when the Services determine that "sufficient new information"* has been received to warrant a new proposal.

The Director will review each listed species at least once every 5 years to determine whether its classification remains warranted.

Emergency Rules

The Director may by emergency regulation take any action provided under Section 4 of the Act (that is listing, Critical Habitat designation, or special rule) if such a measure is warranted by the development of a significant risk to the well being of a species. Emergency rules shall become effective immediately upon their publication in the *Federal Register*, although the Governor of any affected State must be notified in advance. Such rules will remain effective for 240 days unless the Director determines that substantial evidence does not exist to warrant the regulation, in which case it shall be withdrawn.

New Format for Lists

Both U.S. Lists (for wildlife and plants) have been restructured to indicate whether or not Critical Habitat has been designated for the species. A column entitled "Historic Range" has been added to both animal and plant lists, to indicate (for informational purposes) the general known distribution of the species or subspecies as reported in the scientific literature. This column replaces the "Known Distribution" column on the current U.S. List (and does *not* imply any limitation on applications of the Act's prohibitions). A new column entitled "Vertebrate Population where Endangered or Threatened" has been added to the U.S. List for wildlife only (as populations of invertebrates and plants may not be listed under the Act). (The lists will be republished in the *Federal Register* later this spring.)

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* Sufficient new information—The Department of the Interior Solicitor has determined with respect to withdrawn proposed listings, that "new information" applies to additional information received subsequent to the date of the withdrawal. While the amount and quality of "sufficient new information" would be expected to vary from species to species, this standard should not imply any modification in the biological listing criteria now imposed under Section 4, in the opinion of the Solicitor. While the "sufficiency" of new information would be directly related to the factors which contributed to failure to complete the original listing proposal within the 2-year deadline, either (1) an analysis of data verifying a species' precarious biological status (or newly collected data) *or* (2) economic analysis and related data as required under 1978 amendments would essentially meet the "sufficient new information" standard.

SEA TURTLE STAMPS ISSUED

The General Post Office of the Republic of Maldives, a group of coral islands in the Indian Ocean, has issued a series of stamps depicting seven species of sea turtles found in their waters. Of the seven species, six are on the U.S. List of Endangered and Threatened Wildlife and Plants. They are: leatherback sea turtle *(Dermochelys coriacea)*, hawksbill sea turtle *(Eretmochelys imbricata)*, loggerhead sea turtle *(Caretta caretta)*, Olive Ridley sea turtle *(Lepidochelys olivacea)*, Kemp's Ridley sea turtle *(Lepidochelys kempii)*, and green sea turtle *(Chelonia mydas)*. The flatback sea turtle *(Chelonia depressa)*, which is not on the U.S. List, but is protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), also appears on a stamp.

Designed by Maxim Shamir and printed by the House of Questa, England, the stamps cost 10/93 rupees per set and 4/00 rupees for a souvenir sheet. A first-day cover envelope was issued along with this set and is available for 1.00 rupees. (Exchange rate: $1.00=3.93 Rs.)

Orders for stamps and first-day covers should be sent with full payment by bank draft or International Money Order to Postmaster, General Post Office, Malé, Republic of Maldives.

BERTRAND TO HEAD MASSACHUSETTS AUDUBON

Dr. Gerard A. Bertrand, Chief of the Service's International Affairs division, will leave his post in mid-April to serve as President and Chief Executive Officer of the Massachusetts Audubon Society.

Bertrand, 36, served as science advisor to the President's Council on Environmental Quality before coming to the Service in 1977. Under his leadership, the U.S. role in international wildlife conservation has been greatly expanded, with major accomplishments in the implementation of protective wildlife treaties (notably the Western Hemisphere Convention) and in the conservation of migratory birds. Bertrand and his staff have initiated wildlife conservation programs with more than a dozen countries, including significant endangered species projects in India, Egypt, and Pakistan under the Service's excess foreign currency program.

Selected from over 150 candidates, Bertrand looks forward to guiding Mass. Audubon's wildlife and natural areas preservation programs and to active involvement in the Society's environmental education effort.

Rulemaking Actions

February 1980

BELL'S VIREO UNDER REVIEW

The Service has published a notice of review requesting information which may lead to a proposed listing of two subspecies of Bell's vireo *(Vireo bellii)* as Endangered or Threatened species (F.R. 2/6/80).

A petition to consider listing *Vireo bellii pusillus* and *Vireo bellii arizonae* in California, Nevada, Utah, Arizona, and northwestern Mexico—submitted by Mr. J. M. Greaves of Goleta, California, has attributed the decline of both subspecies to loss of habitat and reproductive losses from parasitism by the brown-headed cowbird *(Molothrus ater)*. This vireo nests in the early successional stages (primarily willows) of riparian woodlands which are rapidly being lost. The cowbird population has increased in the American Southwest and has apparently only recently invaded the vireo's riparian habitat.

Some, but not all, of the information required by the Service before the Director can determine the appropriateness of a listing proposal are: complete distribution and numbers still extant in southwestern U.S. and northwestern Mexico, specific habitats that may be proposed as critical, economic and other impacts of designating such areas as Critical Habitats, and the documented impacts of cowbird and habitat loss on the vireo. Persons having information on the vireo's past or present distribution or rate of cowbird parasitism are urged to send their information to the Service. This, and any other relevant information, should be sent to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240, on or before October 3, 1980.

DATA REQUESTED FOR FRITILLARY BUTTERFLY

The status of the Uncompahgre fritillary butterfly (*Boloria* sp.) is being reviewed by the Service to determine if it should be added to the U.S. List of Endangered and Threatened Wildlife and Plants (F.R. 2/6/80).

Known only from a restricted area on Mount Uncompahgre, Hinsdale County, Colorado, this butterfly may be Endangered or Threatened because of overcollecting and the inadequacy of existing regulatory mechanisms. Since rare species of the fritillary butterfly genus *Boloria* are valued highly by collectors, a high demand for this species is expected to occur when it is described scientifically. Excessive collecting activity may also damage the butterfly's fragile high altitude habitat.

The Service is seeking the views of the Governor of Colorado and soliciting from him information on the butterfly's status. Other interested parties are requested to submit any factual information (especially publications and written reports germane to the status review) to the Office of Endangered Species, U.S. Fish and Wildlife Service, Washington, D.C. 20240, on or before May 6, 1980.

Reference Note

All Service notices and proposed and final rulemakings are published in the *Federal Register* in full detail. The parenthetical references given in the BULLETIN—e.g., (F.R. 1/17/80)—identify the month, day, and year on which the relevant notice or rulemaking was published in the *Federal Register.*

ENDANGERED SPECIES CONFERENCES PLANNED

A Northeast Endangered Species Conference is scheduled for May 9-11 in Provincetown, Massachusetts. Organized by the Center for Action on Endangered Species, Monitor International, and the Provincetown Center for Coastal Studies, the conference will focus on the status of rare, endangered—and threatened species, preservation efforts, and the role of government agencies and the scientific community in conserving endangered species in the Northeast States from Virginia to Maine. Featured during the 3-day session will be lectures, slide shows, films, exhibits, and a whale watching expedition in Cape Cod Bay. Advance registration fee is $25 (with an additional $10 for the whale-watch.) Contact Phoebe Wray, (617) 772-0445, Center for Action on Endangered Species, 175 West Main Street, Ayer, Massachusetts. 01432.

The 1980 American Association of Zoological Parks and Aquariums (AAZPA) Great Lakes Regional Conference will be held April 27-29 at the Cincinnati Zoo. The thrust of this conference will be endangered species, with topics such as "Computer Aid for Endangered Species," "Interpretation and Education Programs," and an "Endangered Species Tour" included on the agenda. Registration fees are $30 for members and their spouses, and $40 for nonmembers. For further information contact Barry Wakeman at the Cincinnati Zoo, (513) 281-3700.

BOX SCORE OF SPECIES LISTINGS

Category	Number of Endangered Species			Number of Threatened Species		
	U.S.	Foreign	Total	U.S.	Foreign	Total
Mammals	35	251	286	3	21	24
Birds	67	145	212	3		3
Reptiles	11	50	61	10		10
Amphibians	5	9	14	2		2
Fishes	29	11	40	12		12
Snails	2	1	3	5		5
Clams	23	2	25			
Crustaceans	1		1			
Insects	6		6	2		2
Plants	49		49	7	2	9
Total	228	469	697	44	23	67

Number of species currently proposed: 35 animals (no plants)
Number of Critical Habitats listed: 35
Number of Recovery Teams appointed: 66
Number of Recovery Plans approved: 31
Number of Cooperative Agreements signed with States:
34 (fish & wildlife)
3 (plants)

February 29, 980

NEW PUBLICATIONS

State Reports on Rare, Threatened, and Endangered Plants for *Maryland, Delaware, Pennsylvania, New York,* and *Virginia,* are available from the Service's Boston Regional Office.

The Endangered Species: A Symposium, Great Basin Naturalist Memoirs, No. 3, may be purchased from the Life Science Museum, Brigham Young University, Provo, Utah 84602, for $6.00 per copy.

The Oregon Natural Area Preserves Advisory Committee has published *Rare, Threatened and Endangered Vascular Plants in Oregon—An Interim Report.* This publication will be used in the development of a Natural Heritage Plan for the State. Copies are available from the Division of State Lands, 1445 State Street, Salem, Oregon 97310.

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

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ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

ANTIOCH DUNES ACQUIRED FOR BUTTERFLY AND TWO PLANT SPECIES

The Service has completed the emergency acquisition of more than 55 acres of a unique sand dune system that is home to an Endangered butterfly and two recently listed plants.

Situated along the southern shore of California's San Joaquin River, the Antioch Dunes constitute the only known habitat for the Lange's metalmark butterfly (*Apodemia mormo langei*), the Antioch Dunes evening-primrose (*Oenothera deltoides* ssp. *howellii*), and the Contra Costa wallflower (*Erysimum capitatum* var. *angustatum*). All three species hang precariously on the brink of extinction unless their habitat can be preserved and protected.

Many parties, including the two property owners, cooperated to expedite the acquisition—the first for an Endangered insect or plant—to forestall the development of a marina and halt sand mining imminently slated for the area. Options on the two parcels—41 acres owned by Mr. George Stamm and 14 acres owned by Mrs. Ethyl Sardis—were exercised and $2,135,000 in Land and Water Conservation Funds were used in the acquisition.

Photo by J. A. Powell

A Lange's metalmark lights upon Antioch buckwheat, its exclusive larval food source.

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Background

Lying near the confluence of the Sacramento and San Joaquin Rivers just east of the town of Antioch, the Antioch Dunes is a remnant of a unique river sand dune system once covering close to 500 acres. Biologically, the area is considered a relict "island" containing the northernmost range of many plants and animals of desert affinities—their habitat once extending into the Central Valley in prehistoric times. Natural geological processes subsequent to the last glaciation reduced the desert habitat to a few small areas, with the northernmost sand dune community at Antioch.

Discovered entomogically in 1932, the area has since been characterized as having perhaps the highest concentration of distinct endemic insects in the United States. At least 24 identified species or subspecies have the Antioch Dunes as their type locality. Of these, 10 have never been discovered elsewhere, and another 6 are known only from other vulnerable locations in

Continued on page 6

RECLASSIFICATION PROPOSED FOR THE LEOPARD

Michael Bender

With commercial exploitation of the leopard (*Panthera pardus*) now under better international control, the Service believes that reclassifying this species from Endangered to Threatened in portions of Africa would more accurately reflect its true status in the wild (F.R. 3/24/80).

Commercial traffic in its fur has always been considered the main threat to the leopard, and the proposal does not authorize any relaxation in commercial import prohibitions under the Endangered Species Act. Rather, the Service strongly recommends that the leopard be retained on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), where its import and export would be strictly regulated.

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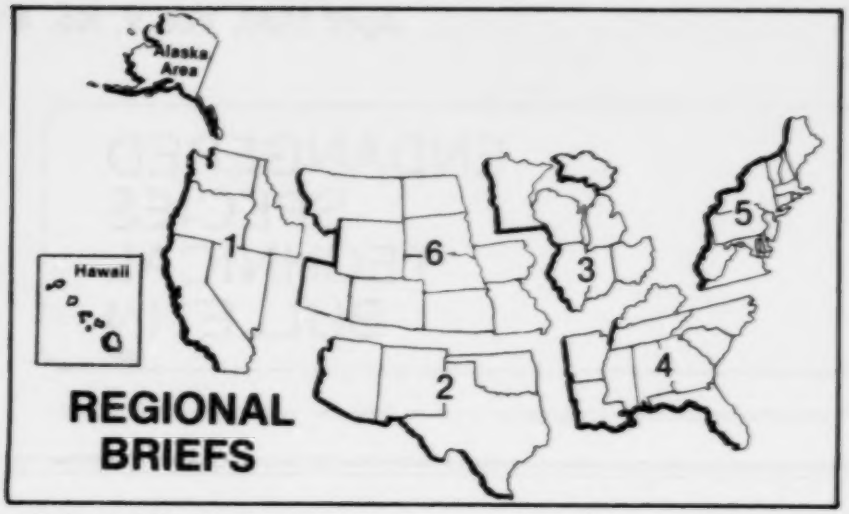

REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of March.

Region 1. The Blunt-Nosed Leopard Lizard Recovery Plan has been sent to Washington for final approval. (For more information on activities in Region 1, see our stories on Antioch Dunes acquisition and recovery plan.)

Region 2. The region is making preparations to close the Beaumont, Texas, field office of the red wolf *(Canis rufus)* recovery program. Field activities will cease by May 1, and the facility will close by mid-July. Preparations are underway to declare the red wolf extinct in its final range of Louisiana and Texas. (Program emphasis will then be focused on captive propagation and eventual re-establishment in the wild.)

To further assess the status of Endangered fishes, staff members travelled to the Colorado River and Lake Mojave in an attempt to trammel-net bonytail chubs *(Gila elegans)* and razorback suckers *(Xyrauchen texanus)*. No bonytails were found; 22 razorbacks were tagged and released.

The Bald eagle *(Haliaeetus leucocephalus)* nesting study study on the Verde and Salt Rivers has begun. Dr. Ohmart of Arizona State University is conducting the research, which will extend into February 1981.

The following publications are available from the Albuquerque Regional Office: *The Mexican Wolf* (Endangered Species Report No. 8), and "The Houston Toad," first of a new series entitled "In Jeopardy: America's Endangered Species."

Region 3. Our Service met with the National Park Service, U.S. Forest Service, and Minnesota Department of Natural Resources to discuss mutual concerns including wolf management and prey species which affect the wolf.

Region 4. Tennessee Valley Authority personnel initiated this year's efforts to develop hatchery propagation techniques for the snail darter *(Percina tanasi)*. Egg taking and fertilization are being done by hand. Problems with selecting broodfish in peak spawning condition apparently led to poor initial results. Total eggs taken for the month were two larvae and 341 eggs which were still developing and offering prospects for improved results.

Region 5. The Peregrine Falcon Recovery Team has a new leader. Gene McCaffrey, New York Department of Environmental Conservation, replaces Rene Bollengier who served as team leader for the last four years.

Region 6. An Endangered Species Packet has been prepared as the result of a cooperative effort between our Service, the South Dakota Cooperative Extension Service, South Dakota Department of Game, Fish and Parks, and South Dakota State University. The packet contains pamphlets on the bald eagle *(Haliaeetus leucocephalus)*, black-footed ferret *(Mustela nigripes)*, swift fox *(Vulpes velox hebes)*, and whooping crane *(Grus americana)*. Also included is a whooping crane poster and two booklets: *Endangered and Threatened Species in South Dakota* and *Endangered and Threatened Fishes of South Dakota*.

U.S. Fish and Wildlife Service
Washington, D.C. 20240

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U.S. Fish and Wildlife Service Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Iowa, Kansas, Missouri, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Alaska Area:** Alaska.

The ENDANGERED SPECIES TECHNICAL BULLETIN is published monthly by the U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

The packet is available from the Denver Regional Office.

Alaska Area. The Area Office played host to an inter-agency Section 7 consultation workshop. Forty representatives from both Federal and State agencies attended.

Major changes in the Aleutian Canada goose *(Branta canadensis leucopareia)* recovery effort were recommended by the recovery team at its January meeting, and have been reviewed by the Service and implemented. Based on current biological data, the results from last year's experimental wild-bird transplants, and the previous propagation releases, the future emphasis will be on releases of stock obtained from the wild. The two approaches will be 1) capturing of wild adults and goslings on Buldir Island and transplanting that summer, and 2) pairing of wild adult males captured on California wintering grounds or on Buldir Island with propagated breeding age females until a firm pair bond is established. These pairs will then be released on target sites either as pairs in the spring, or with their broods in the summer.

Exemption Procedures and Application Regulations Issued

William Gill

Final rules governing exemption applications and describing the functions and procedures of review boards and the Endangered Species Committee have been published by the Departments of the Interior and Commerce.

The Endangered Species Act Amendments of 1978 establish a procedure for obtaining exemptions from section 7 of the Endangered Species Act. This procedure was further clarified under the more recent amendments enacted on December 28, 1979. (See the October 1978 and January 1980 BULLETINS.)

Section 7 requires Federal agencies to insure, in consultation with the Secretary of the Interior or Commerce, that their actions are not likely to jeopardize the continued existence of Endangered or Threatened species or destroy or adversely modify their Critical Habitats. Applications for exemptions from this requirement may be made by a Federal agency, by the Governor of a State in which a proposed action would occur, or by a person whose permit or license application has been denied primarily because of section 7 considerations. An application for an exemption is to be directed in writing to the Secretary, who determines if it is properly presented. It is then evaluated by a specially-appointed review board and, if certain criteria are met, decided upon by the Endangered Species Committee.

Application Procedures

Under the newly published application regulations (F.R. 2/8/80), individuals or agencies qualifying for exemption consideration under Section 7(g) must submit a written application to the appropriate Secretary within 90 days of the termination of the consultation process (or within 90 days of the date the Federal agency takes final action concerning a permit or license application). Qualifying parties also have 90 days from March 10, 1980 (the effective date of the final rules), to apply for an exemption with regard to consultations previously completed.

The Secretary may reject an application for exemption that does not comply with all pertinent requirements within 10 days of receipt. A prehearing conference of the review board may be convened by the Secretary if he has questions concerning the applicant's compliance, and the application can be subsequently rejected if found inadequate. The Secretary of State must be notified and public notices published in the *Federal Register* concerning all applications.

Among the changes imposed under 1979 amendments are (1) specific inclusion of the 90-day filing deadline for license or permit applicants beginning after the date on which the concerned Federal agency takes final action; and (2) clarification of threshold responsibilities of the concerned Federal agencies and/or exemption applicant in review board proceedings under Section 7(g)(5). The final rules outline specifically the required contents of exemption applications for: (1) license or permit applicants whose permit or license was denied by a Federal agency primarily because of Section 7(a)(2); Federal agency applicants; and (3) applications from State Governors.

Additional changes were also incor-

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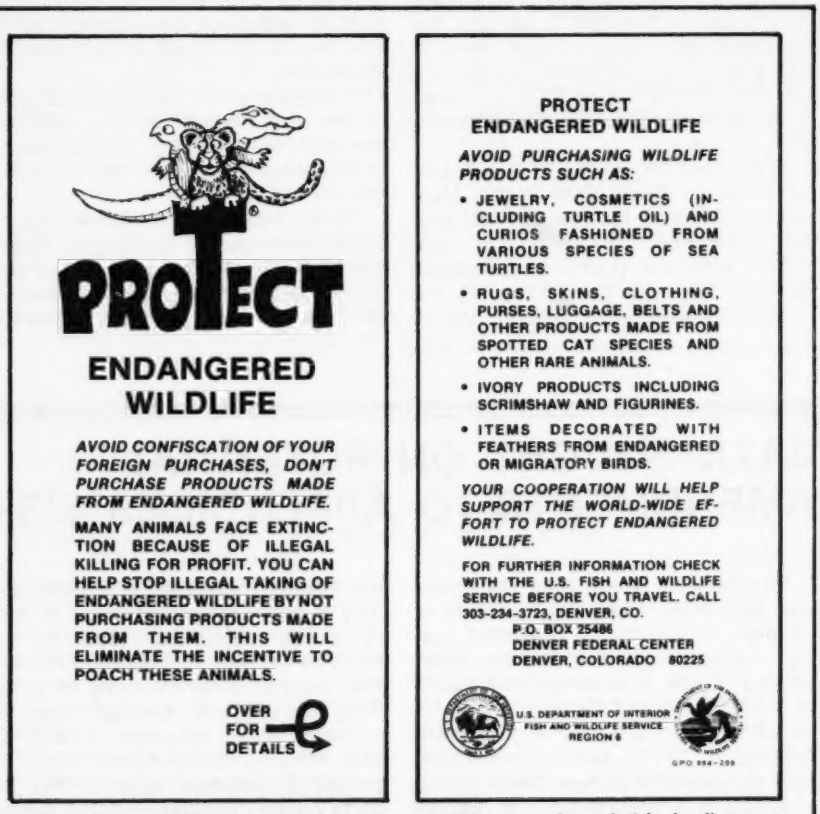
PROTECT
ENDANGERED WILDLIFE
AVOID CONFISCATION OF YOUR FOREIGN PURCHASES, DON'T PURCHASE PRODUCTS MADE FROM ENDANGERED WILDLIFE.
MANY ANIMALS FACE EXTINCTION BECAUSE OF ILLEGAL KILLING FOR PROFIT. YOU CAN HELP STOP ILLEGAL TAKING OF ENDANGERED WILDLIFE BY NOT PURCHASING PRODUCTS MADE FROM THEM. THIS WILL ELIMINATE THE INCENTIVE TO POACH THESE ANIMALS.
OVER FOR DETAILS
PROTECT
ENDANGERED WILDLIFE
AVOID PURCHASING WILDLIFE PRODUCTS SUCH AS:
• JEWELRY, COSMETICS (INCLUDING TURTLE OIL) AND CURIOS FASHIONED FROM VARIOUS SPECIES OF SEA TURTLES.
• RUGS, SKINS, CLOTHING, PURSES, LUGGAGE, BELTS AND OTHER PRODUCTS MADE FROM SPOTTED CAT SPECIES AND OTHER RARE ANIMALS.
• IVORY PRODUCTS INCLUDING SCRIMSHAW AND FIGURINES.
• ITEMS DECORATED WITH FEATHERS FROM ENDANGERED OR MIGRATORY BIRDS.
YOUR COOPERATION WILL HELP SUPPORT THE WORLD-WIDE EFFORT TO PROTECT ENDANGERED WILDLIFE.
FOR FURTHER INFORMATION CHECK WITH THE U.S. FISH AND WILDLIFE SERVICE BEFORE YOU TRAVEL. CALL 303-234-3723, DENVER, CO.
P.O. BOX 25486
DENVER FEDERAL CENTER
DENVER, COLORADO 80225
U.S. DEPARTMENT OF INTERIOR
FISH AND WILDLIFE SERVICE
REGION 6
GPO 854-299

Frontier and Mexicana Airlines are providing copies of this leaflet, prepared by the Service, to passengers on their Mexican flights. Personnel from the Denver Regional Office report that the leaflets received a good response from the airlines and that Frontier has added them to their flights into Canada.

Exemption Regs

Continued from page 3

porated based on comments on the proposed rules. These include the publishing of notices of exemption applications received in the *Federal Register* and notification to the Council on Environmental Quality through the general *Federal Register* notice only.

Procedural Regulations

Regulations governing the procedures for the handling of applications by the review board and the cabinet-level Endangered Species Committee have been published (F.R. 4/4/80). (Interim rules had been published (F.R. 6/8/79) to guide the handling of pending exemption applications—see the July 1979 BULLETIN.)

The review board conducts a threshold review during which the applicant must bear the burden of proof on its position on each threshold criterion. A negative finding by the board (a determination that an irresolvable conflict does not exist, or that all other exemption requirements have not been met) constitutes final agency action. A positive finding results in referral to the Endangered Species Committee. The exemption process can also terminate if the Secretary of State certifies in writing to the Committee that granting an exemption or carrying out the proposed action would violate a treaty or other international obligation of the U.S.

The review board can conduct prehearing conferences and other meetings, which shall be advertised in the *Federal Register* and open to the public. Within 180 days of receipt of an application, the board must issue a report to the Endangered Species Committee addressing: (1) reasonable and prudent alternatives to the action, the nature and benefits of the agency action, and alternate courses of action consistent with conserving the species or its Critical Habitat; (2) whether or not the action is in the public interest and is of national or regional significance; and (3) appropriate mitigation and enhancement measures to be considered.

The Committee then reviews the report and make a final determination within 90 days of receipt of the board's report and records. If the Committee determines that an exemption should be granted, it will issue an order granting the exemption and specifying required mitigation and enhancement measures. (The Committee's decision will appear in the *Federal Register*.)

One major change resulting from the 1979 Amendments provides that any exemption granted by the Committee shall constitute a permanent exemption regarding all Endangered and Threatened species for purposes of completing the agency action, regardless of whether the species was identified in the biological assessment required under Section 7(c). The exemption will not be permanent, however, if: (1) the Secretary finds, based on the best scientific and commercial data available, that an exemption would result in the extinction of a species that was not the subject of a section 7 consultation or was not identified in any biological assessment, and (2) the Committee determines within 60 days after the date of the Secretary's finding that the exemption should not be permanent. If the Secretary makes a finding that the exemption would result in the extinction of a species, the Committee must meet with respect to the matter within 30 days after the date of the finding. (During the 60 day period following the Secretary's determination, the holder of the exemption must refrain from any action which would result in extinction of the species.)

PUBLIC INVITED TO MEETING PREPARATORY TO CITES 1981 CONFERENCE

Acting through the Service, U.S. Management and Scientific Authorities for the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) have scheduled a public meeting to discuss the proposed agenda and other items in preparation for the forthcoming third biennial conference of CITES parties, to be held in New Delhi in February 1981.

Scheduled for June 2, from 9:30 a.m. to 12:30 in Room 5160 of the Main Interior Building, the meeting will provide a forum for the receipt of comments from the public on proposed agenda items (to be detailed in the *Federal Register* early in May), and on any proposed changes in the appendices lists of protected species under CITES (see accompanying notice). Procedures for the selection of U.S. delegates to the New Delhi conference and for observer participation at the meeting of the parties will also be discussed.

(Procedures for public participation in the development of U.S. positions for the 1981 meeting should also be published in the *Federal Register* some time in May.)

Those interested in more specific information and/or wishing to attend the May meeting should contact Mrs. Joan Anthony in the Service's Federal Wildlife Permit Office (703) 235–2418.

DATA SOUGHT ON POTENTIAL AMENDMENTS TO APPENDICES LISTS

The Service is soliciting comments and data with respect to additions or changes to the lists of protected species under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) for possible consideration at the third meeting of CITES parties (scheduled for February 1981 in New Delhi, India).

CITES is a 59-nation treaty regulating the import and export of animals and plants listed under three appendices. Appendix I includes species threatened with extinction that are or may be affected by trade. Appendix II includes species that, although not necessarily threatened with extinction, may become so unless trade in them is strictly controlled. (Species that must be subject to regulation in order that trade in other currently or potentially threatened species may be brought under effective control are also included under Appendix II.) Appendix III includes species that any party nation identifies as being subject to regulation within its jurisdiction, and for which it needs the cooperation of other parties in controlling trade.

Any party nation may propose amendments to Appendices I and II, which must be submitted to the CITES

INTER-AGENCY COOPERATION ASSISTS LAW ENFORCEMENT

Clare Senecal

Two memoranda of understanding, designed to help control growing wildlife crime and preclude duplication of enforcement efforts, were signed on March 19, 1980, by representatives of five Federal agencies involved in wildlife law enforcement. Signers represented the Departments of the Interior (Fish and Wildlife Service), Agriculture (Animal and Plant Health Inspection Service), Commerce (National Marine Fisheries Service), Treasury (Customs), and Justice (Land and Natural Resources Division).

The memoranda were initiated by an April 1979 White House directive to the Secretary of the Interior and the Council on Environmental Quality, which requested an assessment of Federal wildlife law enforcement efforts and the submission of recommendations outlining a mechanism to ensure more complete interagency cooperation. The need for enforcement efficiency was reemphasized in the President's August 1979 Environmental Message, and a Wildlife Law Enforcement Coordinating Committee was established shortly thereafter. (The Committee is chaired by a representative of the Service with members from the other four enforcement agencies.)

The first of the two memoranda of understanding provides for cooperation, as mutually agreed between the represented Departments, to promote enforcement efforts. The specific purposes of the Committee, as outlined in the agreement, include investigation of illegal trade in protected species to insure that such trade is actively investigated and violators prosecuted; the review of enforcement experience, problems and priorities of each involved agency; the coordination of Federal-trade enforcement policies generally; and, improved efforts in keeping heads of represented Departments better informed.

It was also agreed that the Committee would establish task forces to coordinate various wildlife investigations. The first such task force, to investigate Texas trade in wildlife, is formed by the second of the two subject memoranda. This group will focus its attention on law enforcement activity relating to illegal importation of wildlife and their parts or products from Mexico into the United States at Texas.

The Service plans to host a press conference in June of this year to report on the Texas task force and on other similar group efforts which are currently under way.

MAN CONVICTED IN BALD EAGLE VIOLATION

The longest sentence imposed for violation of a Federal wildlife law—three years in prison—has been handed down for a rural Blackduck, Minnesota, man who was convicted on March 4, 1980, of killing and selling a bald eagle. Charges against Emmett Carrigan, made in the U.S. District Court in St. Paul, culminated a year-long investigation by special agents of the U.S. Fish and Wildlife Service and Minnesota State authorities.

Carrigan acknowledged selling a bald eagle which he had killed to Service agents acting undercover, and was convicted on two counts—violations of the Migratory Bird Treaty Act and the Endangered Species Act of 1973, respectively. Carrigan had dealt in the illegal sale of bald eagles on previous occasions.

Secretariat 150 days in advance of the meeting for consideration by the parties. (Subsequent to responses by other parties, amendments are adopted by a two-thirds majority vote.)

Acting through the Service, the U.S. Scientific Authority and U.S. Management Authority for CITES are requesting information that may lead to the development of proposed amendments for consideration at the New Delhi meeting.

Generally, the following types of information are required for proposals:

1. **Taxonomy**
   - (a) Class
   - (b) Order
   - (c) Family
   - (d) Genus, species or subspecies, including author and year
   - (e) Common name(s), when applicable
   - (f) Code numbers, when applicable
2. **Biological data**
   - (a) Distribution (current and historical
   - (b) Population (estimates and trends)
   - (c) Habitat (trends)
3. **Trade data**
   - (a) National ultilization
   - (b) Legal international trade
   - (c) Illegal trade
   - (d) Potential trade threats
   - (i) Live specimens
   - (ii) Parts and derivatives
4. **Protection status**
   - (a) National
   - (b) International
   - (c) Additional protection needs
5. **Information on similar species**
6. **Comments from countries of origin**
7. **Additional remarks**
8. **References**

Please consult the April 4, 1980, Federal Register for additional guidance on appropriate submissions.

All information and comments should be submitted by June 3, 1980, to the Office of the Scientific Authority, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240. (Notices will appear in the *Federal Register* prior to official U.S. submissions requesting comments on proposed amendments and negotiating positions of the U.S. as well as amendments proposed by other party nations. All proposals must be communicated to the Secretariat by September 5, 1980.)

Service Acquires Antioch Dunes

Continued from page 1

the Delta region or the northern Central Valley of California.

First described in 1938, Lange's metalmark butterfly occurs only on the Antioch Dunes, where its larvae feed exclusively on Antioch buckwheat *(Eriogonum nudum* var. *auriculatum).* Recent surveys show that only 10 acres on the "Stamm" parcel may contain sufficient buckweat stands to serve as hosts for the butterfly (with a population of less than 200 butterflies within this acquired area), while another stand of the vegetation extending onto adjacent dunes supports a second colony of about 250 metalmarks. The butterflies continue to survive at Antioch despite extreme drought in 1976–77, increased rototilling as a fire prevention measure, and a fire that destroyed most of one buckwheat colony in 1976.

[The Service will soon be reviewing the status of nine insects native to Antioch to determine whether Federal listing as Endangered or Threatened may be warranted. Species to be reviewed include the Middlekauff's katydid *(Idiostatus middlekauffi),* Antioch weevil *(Dysticheus rotundicollis),* Antioch robber fly *(Cophura hurdi),* Valley mydas fly *(Raphiomydas trochilus),* Antioch vespid wasp *(Leptochilus arenicolus),* Antioch tiphiid wasp *(Myrmosa pacifica),* Antioch sphecid wasp *(Philanthus nasalis),* Antioch andrenid bee *(Perdita scitula antiochensis),* and yellow-banded andrenid bee *(Perdita hirticeps luteocincta).*]

The Contra Costa wallflower and Antioch Dunes evening-primrose are also considered relict desert types which—together with several other plant species—form the basis of the unique sand dune insect community. Both the primrose and wallflower are exclusive hosts to several moths, beetles, and bees on Antioch (although none of them is believed to be limited to this area).

The entire area acquired is within the boundaries of Critical Habitat for the wallflower and primrose (identical for both Endangered plants), designated on August 31, 1978, to protect their range from potentially harmful Federal activities (see the September 1978 BULLETIN). Both plant species were depicted a year ago on U.S. commemorative "endangered flora" postage stamps (see the May 1979 BULLETIN).

The Antioch Dunes evening-primrose is a short-lived biennial with large, white flowers that open at night and then fade to pink. Once relatively common in the Antioch Dunes area, the subspecies is now confined to about 60 acres where it survives most vigoruously on redeposited wind-blown sand. (Approximately 800 individuals remain.) Where observed in cultivation, primrose seedlings do not grow where adult plants have previously matured unless fresh sand is deposited—a normal process in dune ecosystems undisturbed by man.

Also a biennial, with yellow-orange flowers, the Contra Costa wallflower occurred on several hundred acres a few decades ago. Less than 200 individuals now survive on a few acres, where they exist on stabilized dunes of fine sand and clay sparsely covered with herbs and shrubs or pasture grasses. The species has survived human disturbance, and seems to thrive in mildly disturbed sand (primarily from rototilling).

Threats

Because of the confined, interdependent nature of this dune community, the Antioch ecosystem is particularly vulnerable to human interference.

U.S. Fish and Wildlife Service Photo

Possibly no more than 800 individuals of the Antioch Dunes evening primrose survive today.

Sand mining and the encroachment of weedy exotics (the latter encouraged by fire prevention rototilling) have been the primary destroyers of flora that remained after industrialization of major portions of the dunes in the 1950's. Housing development, agriculture, off-road vehicle (ORV) activity, and clearing for power lines have also caused severe habitat deterioration. Native species faced an additional threat in 1976 when an 84-acre waterfront park was proposed for the dunes. (The State of California withdrew the project in March 1979, because the City of Antioch did not have adequate matching funds at the time.)

Continued sand mining, rototilling, and discing for fire control have reduced the Antioch buckwheat to numbers barely adequate to support the remaining Lange's metalmark colonies.

Continued on page 8

PAHRUMP KILLIFISH RECOVERY PLAN APPROVED

The Service has approved a recovery plan for the Endangered Pahrump killifish *(Empetrichthys latos latos)* which occurs only in transplanted populations in Nevada. It is the only fish native to the Pahrump Valley, and is one of two fish which constitute the genus *Empetrichthys*. The other, the Ash Meadows killifish *(E. merriami)*, became extinct in the late 1940's.

Only about 3 inches in maximum length, the Pahrump killifish was historically known only from Manse Springs, where it became extinct in 1975 because of the drying of its habitat. The drying of Manse Springs came as no surprise to those familiar with desert springs, and was even predicted after demands on water in the area had been reviewed. It was that prediction which led to the transplanting of the Pahrump killifish and its continued existence today.

The recovery plan calls for the establishment of three sub-populations of the species, each with a minimum of 500 adults. With this level being maintained for three years, the recovery team anticipates the possibility of reclassifying the species as Threatened.

Because the Pahrump killifish no longer exists in its natural habitat, the plan's first priority is the protection and management of the transplanted populations. This would take the form of removal of competing exotic species (such as fish and turtles) as well as safeguards against their reintroduction.

New sites will have to be determined for establishing killifish populations, as the Shoshone Ponds population is considered only temporary because of its great distance from the species' native habitat. The site given highest priority for reintroduction is the Pahrump's ancestral home, Manse Springs. To prepare for such a reintroduction, the team suggests that a management plan be drawn to include, among other things, removal of exotic species, vegetation and water control, and biological enhancement.

Studies on habitat and the fish itself will have to be conducted prior to development of any management plans. Habitat studies will include (1) determination of habitat productivity, (2) habitat diversity, (3) water chemistry investigation, (4) determination of yearly temperature regime, and (5) determining the volume configuration of the habitat.

Biological investigations of the killifish should include a study of (1) competition with fish, frogs, birds, etc., (2) food and feeding habits, (3) spawning ecology, (4) water temperature preferences, and (5) substrate requirements.

Other activities recommended in the recovery plan include water management at Corn Creek Springs (the other existing transplant site) because of its limited volume. Attention should be given to any controllable factor which may reduce water volume (such as the removal of undesirable aquatic vegetation necessary to prevent excessive evapotranspiration).

Both populations should be censused twice yearly, in March at the beginning of the main spawning season and in late September at the end of the main growing season.

Finally, the recovery plan calls for a public information effort using publications, slide shows, and signs at habitat locations, to achieve support for the restoration of the Pahrump killifish.

Photo by Doug Selby

A Service-approved recovery plan recommends the reestablishment of the Pahrump killifish.

SERVICE NAMES TWO RECOVERY TEAMS

Two recovery teams, one for the Tennessee purple coneflower *(Echinacea tennesseensis)* and one for Upper Mississippi River bivalves, were appointed by the Service in March.

Serving on the Tennessee Purple Coneflower Recovery Team are Dr. Paul Somers, Leader, Tennessee Heritage Program; Dr. Elsie Quarterman, plant ecologist; Dr. Thomas Hemmerly, Department of Biology, Middle Tennessee State University; and Dr. Robert Farmer, plant physiologist, Tennessee Valley Authority.

The Upper Mississippi River Bivalves Recovery Team includes Dr. Edward M. Stern, Leader, University of Wisconsin; Emanuel Worth, commercial clammer; Bill Bertrand, Illinois Department of Conservation; Michael J. Vanderford, U.S. Fish and Wildlife Service; Robert Whiting, U.S. Army Corps of Engineers; and Howard Krosch, Minnesota Department of Natural Resources.

Service Acquires Antioch Dunes

Continued from page 7

and the continuing invasion of weedy plants has reduced available space for potential re-establishment of the host buckwheat.

While freshly deposited sand is necessary for the survival of the Antioch Dunes evening primrose, the area has been so severely disrupted that fresh, pure sand may not be available in large enough quantities to support adequate populations. Disturbed areas colonized by weeds are no longer suitable for the establishment of primrose seedlings.

Weedy exotics, direct habitat destruction, and ORV activities are also primary factors in the decline of the wallflower. Pollinators for both the primrose and wallflower may also be in short supply with the continued loss of plant life needed to support them.

Protecting the Other Dunes

Although much of the fragile Antioch ecosystem has been preserved through acquisition, adjacent areas important to the survival of all three listed species are also in need of protection.

Significant numbers of both protected plants and the butterfly occur on about 13 acres of largely unimproved land owned by Pacific Gas and Electric (PG&E), which has right of way for transmission lines through the area, and on another 10 acres now owned by Domtar Gypsum. The Service is hoping to negotiate cooperative management or easement agreements with these parties to promote conservation efforts on the contiguous dune areas. (In the meantime, a concerned salvage operator has been attempting to protect the PG&E property from detrimental activities.)

ORV's—A Continuing Threat?

Management plans for the acquired area—to be administered as part of the Service's San Francisco Bay National Wildlife Refuge complex—will soon be formulated. But, in the three weeks since the Service acquisition, considerable controversy has risen over the matter of public use of Antioch Dunes.

Conservationist organizations and a number of other interested parties are concerned that continuing ORV activities could devastate the remaining dune community. While measures have been taken to close access roads to the newly acquired area, conservationists like Alice Howard of the California Native Plant Society (CNPS) are urging refuge officials to fence off the dunes. "The plants and animals here cannot take much more stress and still be expected to recover," says Howard, who believes blame will inevitably fall with the Service for failing to move swiftly in protecting the dunes from vehicular vandalism. Her view is shared by a number of botanists as well as concerned entomologists like Dick Arnold, who sees a permanent barrier as the only way to insure the otherwise precarious existence of the Lange's metalmark butterfly. "Unfortunately," Arnold says "public ownership has given many people the idea that they have an automatic right to run around the area with their ORVs. I'm afraid make-shift barricades will only temporarily halt this disastrous activity."

But Larry Warden, assistant refuge manager based at Fremont, feels that most of the immediate problems have been resolved. "We've blocked the access with pilings and cables, and have a patrolman out at all times. We will soon have the most sensitive areas posted as closed to the public." Warden says a number of warnings and tickets have been issued, and

Photo by Tom Strekal

Sand mining has reduced this once massive dune to a fraction of its original size. (Looking west, Domtar Gypsum and the west powerline right-of-way are situated not far from the "Sardis" parcel.)

that these interim measures have already begun to reduce vandalism.

Another refuge spokesperson expressed concern over putting money into fencing that could, and likely will, be removed by people who insist on driving on the dunes. "We're contacting ORV clubs and the media in nearby areas, and are planning a volunteer interpretive program to help educate the public. Our constrained budget necessitates this more practical approach to protecting the area, at least until we can agree on a proper management plan." Warden says only $10,000 has been budgeted for manpower and materials to manage this area through the remainder of this fiscal year—hardly enough for the purchase of an adequate chain-link fence.

CNPS takes issue with this approach, however. "We cannot afford a lengthy period of 'sweet-talking' in the hope of educating those who apparently prefer the thrill of maneuvering vehicles through sand. There is not enough left for any portion of this ecosystem to be expendable."

Still another view is held by Antioch's City Council, which is concerned that the Service actually acquired more area than is needed to protect the dune community. According to the Antioch mayor, "this additional acreage . . . could more properly be used for industrial development." The City Council has requested that any area "not actually required for reserve purposes be set aside for industrial development and made available to private industry."

Photo by Paul Opler

Endangered: the Contra Costa wallflower.

PLAN FOR ANTIOCH DUNES RECOVERY

A multi-species plan to bolster the recovery of the Lange's metalmark butterfly, Antioch Dunes evening-primrose, and Contra Costa wallflower—all components of the fragile Antioch sand dune community—has been approved by the Service.

The prime objective of the recovery plan is to protect the Antioch Dunes ecosystem to allow the restoration and delisting of these three species by 1990. The major strategy outlined in the plan is protection of this severely threatened habitat—partially accomplished through the Service's recent acquisition of 55 acres of the Antioch Dunes (see accompanying feature).

The recovery plan recommends that studies be conducted to determine biological requirements of Lange's metalmark butterfly, Antioch Dunes evening-primrose, Contra Costa wallflower, and Antioch buckwheat (on which the butterfly's larvae feed). According to the plan, information is needed on the effects of weedy exotics and possible methods to eradicate them.

Addressing the current critical endangerment of these species, the recovery team calls for development and implementation of preliminary as well as long-term management and strategy plans. Preliminary plans, as outlined by the team, would deal with fire and weed management techniques which have been detrimental to the species, control of competing exotic plants, and public access affecting the species. An immediate management task should be the protection of existing dunes and the possible reconstruction of dunes to provide needed habitat, according to the team.

To determine the success of preliminary and long-term recovery activities, the populations of Lange's metalmark butterfly, Antioch Dunes evening-primose, Contra Costa wallflower, and Antioch buckwheat should be monitored to determine actual numbers and reproductive success. Also, the plan suggests the monitoring of the status of dune habitat in and around the general area to determine the effectiveness of management activities.

As with all recovery plans, this one makes recommendations for a public information campaign to improve awareness of and support for plan implementation. This seems to be especially critical with the Antioch Dunes Recovery Plan because of an existing controversy over public use of the dunes. One recommended aid already under consideration is a sign posted in the area which would include a brief history of the Antioch Dunes ecosystem and list regulations governing the use of the area by the public.

Rulemaking Actions

March 1980

CRITICAL HABITAT PROPOSED FOR THREE BUTTERFLIES

The Service proposes to designate Critical Habitat for two butterflies native to California and one Oregon butterfly previously proposed for Federal listing.

Critical Habitat had been proposed for both the Callippe silverspot butterfly *(Speyeria callippe callippe)* and Oregon silverspot butterfly *(S. zerene hippolyta)* along with proposals to list these insects respectively as Endangered and Threatened (F.R. 7/3/78—see the August 1978 BULLETIN). But, in accord with substantial requirements brought with 1978 Amendments to the Endangered Species Act, the Critical Habitat portions of these proposals were subsequently withdrawn (F.R. 3/6/79—see the April 1979 BULLETIN).

The Palos Verdes blue butterfly *(Glaucopysche lygdamus palosverdesensis)* was also proposed for listing as Endangered on July 3, 1978, and its Critical Habitat is now proposed for the first time.

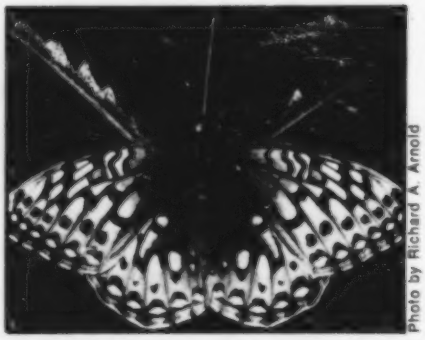

Photo by Richard A. Arnold

The Callippe silverspot is one of three butterflies for which Critical Habitat has been proposed.

Callippe Silverspot

Formerly known from San Francisco and San Mateo Counties, the only true remaining populations of the Callippe silverspot butterfly now occur in the eastern portions of the San Bruno Mountains. (The San Francisco population has been extirpated due to urban development.)

Major threats to surviving populations include projected housing development and increasing recreational activities (a county park is slated for the area) that would directly eliminate portions of the butterfly's essential habitat. Increased tramping, collecting, and disturbance from off-road vehicles would also threaten the existence of the insect.

Changes in fire management (periodic fires may be necessary to maintain the grassland community on which the butterfly depends) would also result from increased human residence and recreational use.

While the previously proposed Oakland Zone has been deleted from this new proposal (as populations of silverspot butterfly in that area are no longer believed to represent Callippe silverspots), additional grasslands on the extreme eastern portions of the main ridge of San Bruno Mountain have been added based on additional information on the species' habitat needs.

Oregon Silverspot

The Oregon silverspot formerly occurred in salt spray meadows from Washington to Oregon. The status of the Washington colony is now uncertain, while most Oregon populations have been extirpated by real estate development. (One of the areas previously proposed as Critical Habitat has since been developed for housing.)

Direct loss of habitat by land clearing, trampling from increased recreational use, and the introduction of weedy exotics that could change the nature of the plant community on which the butterfly depends are all factors that could threaten the survival of the Oregon silverspot.

The salt spray meadow between Big Creek and Rock Creek in Lane County—an area large enough to support the host plant violet essential to the butterfly's survival—has been proposed as Critical Habitat.

Palos Verdes Blue

This butterfly was once known from four restricted localities on the Palos Verdes peninsula. The Palos Verdes blue butterfly has been extirpated from one area due to housing development, and two other localities have been adversely affected by weed control practices that threatened the butterfly's host plant. The rototilling of weeds for fire prevention and other similar land management practices in addition to housing development and increased recreational use (especially at one locality that has been designated a city park) would threaten the continued existence of the Palos Verdes blue butterfly.

Three areas within Los Angeles County containing the coastal chaparral colonies of *Astragalus trichopodus leucopsis* (the butterfly's only host plant) have been proposed for designation as Critical Habitat.

Public Meetings/Hearings

Public meetings on all three proposals were scheduled in mid-April, and public hearings are to be held as follows:

- *Callippe silverspot:* May 1, 7:30 p.m., Plaza Airport Inn, Millbrae, California.
- *Oregon silverspot:* April 29, 7:30 p.m., Plaza Airport Inn, Millbrae, Newport, Oregon.
- *Palos Verdes blue:* May 2, 7:30 p.m., Public Personnel Building, Rancho Palos Verdes, California.

Comments/Data Solicited

The Service has drafted impact analyses on all three proposals, and believes at this time that economic and other impacts of these proposed actions are insignificant (under provisions of the 1978 Amendments and other applicable Federal laws). Upon completion, final impact analyses will serve as the bases for determinations as to whether exclusion of any areas from Critical Habitat designation is warranted (for economic impact or other reasons).

Comments, as well as biological and economic data, in response to these proposals should be submitted by May 27, 1980 (for the Palos Verdes blue and Oregon silverspot), and May 28, 1980 (for the Callippe silverspot), to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

CRITICAL HABITAT PROPOSED FOR FOUR SAN MARCOS RIVER SPECIES

Critical Habitat has been proposed by the Service for two species of fish, a salamander, and a plant dependent upon maintenance of portions of the San Marcos River in Texas (F.R. 3/19/80).

The proposed determinations for the San Marcos gambusia (*Gambusia georgei*) and the San Marcos salamander (*Eurycea nana*) are reproposals of Critical Habitat designations proposed on July 14, 1978 (see August 1978 BULLETIN), but later withdrawn in accord with 1978 Amendments to the Endangered Species Act (see April 1979 BULLETIN). Critical Habitat for the fountain darter (*Etheostoma fonticola*) and the Texas wild rice (*Zizania texana*) are proposed for the first time.

San Marcos Salamander

Proposed for listing as a Threatened species (with special regulations allowing controlled taking under State law) on July 14, 1978, this amphibian is threatened by the potential lowering of water tables affecting Spring Lake. Should Spring Lake become either dry or intermittent, algal mats essential to the salamander's food source and shelter could be exposed, leading to destruction of its only habitat. (Skin divers could also disrupt algal mats and the bottom of the lake, exposing the amphibians to increased predation.)

The Critical Habitat proposal includes Spring Lake and approximately 50 meters downstream of the San Marcos River, the entire known range of the species.

San Marcos Gambusia

Also proposed as Endangered on July 14, 1978, the San Marcos gambusia is presently known only from a short segment of the San Marcos River. Only 19 individuals were found during a 1979 survey—an indication of the species' sensitivity and habitat specificity. The fish prefers open areas away from stream banks with a minimum of aquatic vegetation over a mud bottom with little current. Any actions that would increase vegetation, disrupt the mud bottom, or alter the temperature regime could easily eliminate the species.

A small, 1.5 km section of the San Marcos River below Spring Lake has been proposed as Critical Habitat.

Fountain Darter

Listed as Endangered on October 13, 1970, the fountain darter was orlginally known from the San Marcos and Comal Rivers in Texas. The Comal River population was extirpated in the mid-1950's due to reduced flows. The species presently occurs in Spring Lake and in portions of the San Marcos River, although the fish has been eliminated from a lower portion of the river (apparently due to a small impoundment).

Adult and young fountain darters prefer areas with rooted aquatic vegetation, which grows close to the substrate, with filamentous algae present. Activities which would reduce or eliminate darter populations include impoundments, excessive withdrawal of water, pollution, and any other actions that would destroy or reduce aquatic vegetation in Spring Lake or the San Marcos River.

Its entire known range (Spring Lake and its outflow and the San Marcos River downstream to about just below the Interstate Hwy. 35 bridge) has been proposed as Critical Habitat.

Texas Wild Rice

Listed as Endangered on April 28, 1978 (see the May 1979 BULLETIN), the Texas wild rice was once known from Spring Lake and its outflow and the San Marcos River. Populations have been significantly reduced to a small area along a 1.5 mile stretch of the river.

The species is threatened because of its extreme vulnerability due to its limited range, its apparent inability to reproduce sexually in its native habitat, and the possibility of hybridization. Any action which would significantly alter the flow of water quality of the San Marcos River could adversely modify its essential habitat, as the species is adapted to conditions of clear water, uniform annual flows, and constant temperatures. Dredging, bulldozing, bottom plowing or disturbances from harrowing, cutting, or intensive collecting—the latter identified as factors in the decline of the species—would threaten its survival.

The species' current and former range and a small amount of habitat downstream from existing colonies for possible population expansion (to the river's confluence with the Blanco River) have been proposed as Critical Habitat.

Public Hearing Scheduled

The Service announces that a public hearing on the proposal will be held at the Student Union Bldg., Southwest Texas State University, in San Marcos, Texas, on May 12 at 7:00 p.m. The hearing is being held subsequent to a public meeting scheduled for April 8 in San Marcos.

Comments/Data Solicited

The Service has drafted an impact analysis, and believes at this time that economic and other impacts of this proposed action are insignificant (under provisions of the 1978 Amendments and other applicable Federal laws). Upon completion, a final impact analysis will serve as the basis for a determination as to whether exclusion of any area from Critical Habitat designation is warranted (for economic impact or other reasons).

Comments, as well as biological and economic data, in response to this proposal should be submitted by May 19, 1980, to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

Reference Note

All Service notices and proposed and final rulemakings are published in the *Federal Register* in full detail. The parenthetical references given in the BULLETIN—e.g., (F.R. 1/17/80)—identify the month, day, and year on which the relevant notice or rulemaking was published in the *Federal Register*.

ENDANGERED STATUS AND CRITICAL HABITAT PROPOSED FOR ROBBINS' CINQUEFOIL

The Service has published a proposal to list a rare northeastern plant, the Robbins' cinquefoil (*Potentilla robbinsiana*), as Endangered and to designate the species' limited habitat for Federal protection (F.R. 3/24/80).

Robbins' cinquefoil was cited by the Smithsonian Institution in its July 1, 1975, report to Congress as in need of protection, and was included in a subsequent Service proposal (F.R. 6/16/76) to determine approximately 1,700 vascular plants as Endangered. In line with 1978 Amendments to the Endangered Species Act, requiring that all proposals more than two years old (following a one-year grace period) be withdrawn, the Service published notice on December 10, 1979, withdrawing its June 1976 proposal. At this time, the Service has sufficient new information to repropose this species for listing, and its Critical Habitat is hereby proposed for the first time.

Photo by Garrett E. Crow

A member of the rose family, the Robbins' cinquefoil forms tufted rosettes bearing yellow flowers. The perennial and its reduced habitat are threatened by trampling and other factors.

Status and Declining Factors

This small perennial occurs in alpine areas of New Hampshire and Vermont, where its preferred habitat is nearly barren fell-fields above 4,000 feet.

Historically, the Robbins' cinquefoil is known from two separate localities in the White Mountains of New Hampshire and from one recently discovered locale in Vermont. The plant presently occurs in greatly reduced numbers in only one New Hampshire site (on U.S. Forest Service lands) and on private property in Vermont. Two populations known from the Franconia Ridge of the White Mountains have apparently been destroyed due to hiker impacts.

Trampling as the result of increasing hiker traffic along the Appalachian Trail (bisecting both New Hampshire sites) continues to be the primary threat to remaining populations in the Presidential Range of the White Mountains. The fell-field habitat occupied by the cinquefoil offers no obstacle to hikers wandering off the trail, or to illegal campers and other groups that can easily crush plants or dislodge the stony surface essential to the maintenance of the plant's habitat. Once disturbed these fragile alpine areas and plant communities take many years to recover.

Only a fraction of the original population of Robbins' cinquefoil remains at the second New Hampshire site, and all plants within 2 meters of the Appalachian Trail have been eliminated. (Further destruction may also occur from projected widening of the hiker travel zone in this area.)

Trampling is also considered a threat to the population in Vermont, which has received little protection planning.

Other factors contributing to the decline of the species include overcollecting and the plant's extreme vulnerability to harsh climates and drought due to its declining numbers.

Critical Habitat designation has been proposed for the area in the White Mountains where the species now occurs (exclusive of the summit of Mt. Washington), although additional habitat suitable for reintroduction, management, and natural expansion may be proposed in the future.

Comments/Data Solicited

The Service has drafted an impact analysis, and believes at this time that economic and other impacts of this proposed action are insignificant (under provisions of the 1978 Amendments and other applicable Federal laws). Upon completion, a final impact analysis will serve as the basis for a determination as to whether exclusion of any area from Critical Habitat designation is warranted (for economic impact or other reasons).

Comments, as well as biological and economic data, in response to this proposal should be submitted by May 23, 1980, to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

The Service will hold a public meeting on the proposal on April 28, at 7:30 p.m., at the YMCA in Concord, New Hampshire.

KENTUCKY CAVE SHRIMP NOTICE

The Service has issued an advance notice of its intent to repropose the Kentucky cave shrimp (*Palaemonias ganteri*) for listing as either an Endangered or Threatened species (F.R. 3/28/80). The cave shrimp was previously proposed for listing as a Threatened species (F.R. 1/12/77), but the proposal was withdrawn to comply with the 1978 Endangered Species Act Amendments (F.R. 12/10/79).

A petition to list the species reports its first discovery since 1967 (in the Flint Mammoth Cave System, Edmonton County, Kentucky) and describes threats to its existence. The Service

has determined that this petition presents sufficient new data to warrant a reproposal.

Interested persons having knowledge of the Kentucky cave shrimp or its habitat requirements, or information regarding current and potential threats to its continued existence, are invited to submit factual information to the Office of Endangered Species, U.S. Fish and Wildlife Service, Washington, D.C. 20240.

FIVE FOREIGN REPTILES LISTED AS ENDANGERED

Three lizards and two snakes threatened with extinction on the foreign islands where they occur have been designated by the Service as Endangered species (F.R. 3/20/80).

All five species—the San Esteban Island chuckwalla (*Sauromalus varius*), Fiji Island banded iguana (*Brachylophus fasciatus*), Fiji crested iguana (*Brachylophus* sp.), and two Round Island boas (*Bolyeria multicarinata* and *Casarea dussumieri*) had been proposed for listing on November 2, 1979 (see the December 1979 BULLETIN).

Chuckwalla

The population of the San Esteban Island chuckwalla, a large lizard found only on the island of its name in the Gulf of California, is estimated to number fewer than 4,500. Many specimens have been removed for the exotic pet trade, particularly since the lizard's main habitat is a single arroyo easily accessible by road. The species is not now protected by international trade agreements, although a collecting permit is required by Mexico. It is anticipated that listing the chuckwalla will provide additional protection under the provisions of the Endangered Species Act by imposing added restrictions on importation to the U.S.

Iguanas

The Fiji Island banded iguana and Fiji crested iguana are found only in the Pacific, the former on several islands in Fiji and Tonga, and the latter—a recently discovered species—only on a small, remote island in the Fiji group. Both species are threatened by elimination of habitat through tree removal by humans and vegetation destruction by feral goats. In addition, the banded iguana faces the threat of commercial exploitation for the exotic pet trade. Other problems facing these colorful lizards are predation by feral cats and killing by native Fijians.

Boas

The Round Island boas are the sole surviving members of the subfamily *Bolyerinae*, a group of primitive boas. There have been only six sightings of one species since 1975, and the other species is estimated to number no more than 75. These snakes are mainly threatened by deterioration of their palm forest habitat due to destruction of vegetation (causing erosion) by the rabbits and goats brought to Round Island in 1840.

Although the four Fiji and Round Island species are protected in their native countries, their low populations, remote habitats, and narrow ranges could undermine their precarious hold on existence. Listing of the reptiles will emphasize the importance of protection to residents of the Fiji group, Tonga, Mexico, and Mauritius, and may make U.S. funds and wildlife expertise available to aid the conservation programs of these countries.

SHOSHONE SCULPIN UNDER REVIEW

A native Idaho fish, the Shoshone sculpin (*Cottus greenei*), is the subject of a status review being conducted by the Service.

The species is endemic to the Hagerman Valley in southern Idaho and is restricted to short tributaries of the Snake River in the "Thousand Springs" formation, a spring system existing between Twin Falls and Bliss on the north bank of the Snake River Canyon. It is likely that the Shoshone sculpin had populations in the free-flowing Snake River prior to construction of Dams, the river having served as a dispersal corridor for the species. Lower Salmon Falls Dam and Upper Salmon Falls Dam impounded most of the Snake River within the species' distribution, and Bliss Dam impounded water from a site below Bliss up to the down-river end of the Thousand Springs tributaries. Proposed water projects may adversely affect many of the springs now inhabited by the sculpin.

The Service is seeking comments from the Governor of Idaho, and invites other interested parties to submit any factual information and comments to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240, by May 27, 1980.

SERVICE REVIEWS BONNEVILLE CUTTHROAT TROUT

In response to letters and information from the Desert Fishes Council and the Bonneville Chapter of the American Fisheries Society, the Service is undertaking a status review of the Bonneville cutthroat trout (*Salmo clarki utah*) to determine if a proposal to list the species as Endangered or Threatened is warranted.

The species is known to occur in Lincoln County, Wyoming, White Pine County, Nevada, and Beaver, Jaub, Salt Lake, Sevier, and Washington Counties in Utah. Factors affecting the status of the Bonneville cutthroat include hybridization with non-native trouts and habitat destruction due to agricultural practices, activities associated with mining, and livestock grazing (which destroys and degrades riparian vegetation and streambank soil stability resulting in siltation, stream channel alteration, and loss of cover).

The Service is seeking comments from the Governors of Nevada, Wyoming, and Utah. Other interested parties are requested to submit comments and factual information to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240, by May 27, 1980.

Seizure and Forfeiture Procedures Revised

Revised seizure and forfeiture procedures, to be used by the Service in enforcing the Endangered Species Act and several other wildlife laws, were recently issued in a final rulemaking (F.R. 4/19/80). These regulations clarify prior procedures, which will be continued, and implement the forfeiture provisions of the "customs laws."

The adopted customs laws (certain provisions of the Tariff Act of 1930) allow property having an appraised domestic value not in excess of $10,000 to be forfeited through administrative proceedings conducted by the Department of the Interior. The regulations also provide procedures for filing petitions both to remit forfeiture and to restore the proceeds of forfeited property disposed of according to the law. More efficient transactions involving seizure/forfeiture and petitioning procedures should be effected since, in many instances, these regulations now allow these processes to be handled within the Department.

PUBLIC MEETINGS/HEARINGS

Due to the often unavoidable short notice in scheduling public meetings and hearings (in compliance with 1978 Amendments to the Endangered Species Act) for certain listing and Critical Habitat proposals, we regret that we cannot always relay adequate notice to our readers. In future issues, however, we will attempt to provide available information through this column. Due to space limitations and uncertainty of *Federal Register* publication dates, summaries of pertinent proposed rulemakings may not necessarily accompany meeting notices, but may be included in a subsequent issue of the *Bulletin*.

Species/Action	Affected State(s)	Locations of Meetings/Hearings	Date	Time
Robbins' cinquefoil: proposed E and C.H.	NH	Meeting: YMCA, Concord	4/28/80	7:30 p.m.
Oregon silverspot butterfly: proposed C.H.	OR	Hearing: State Marine Science Center, Newport	4/29/80	7:30 p.m.
Callippe silverspot butterfly: proposed C.H.	CA	Hearing: Plaza Airport Inn, Millbrae	5/1/80	7:30 p.m.
Palos Verdes blue butterfly: proposed C.H.	CA	Hearing: Public Personnel Bldg., Rancho Palos Verdes	5/2/80	7:30 p.m.
Four San Marcos River species (2 fishes, 1 salamander, 1 plant): proposed C.H.	TX	Hearing: Student Union Bldg., Southwest Texas State University, San Marcos	5/12/80	7:00 p.m.
Four Rio Yaqui River Fishes: proposed C.H.	AZ	*Meeting: Cochise College, Douglas	6/3/80	1:30 p.m.
Delta green & California elderberry longhorn beetles: proposed C.H.	CA	Meeting: Tennis Club, 4120 Chiles Road, Davis	5/22/80	7:30 p.m.
		Hearing: (as above)	6/12/80	7:30 p.m.
Mojave rabbitbush longhorn beetle: proposed C.H.	CA	Meeting: Essex House, 44916 N. 10th St. W., Lancaster	5/23/80	7:30 p.m.
		Hearing: (as above)	6/13/80	7:30 p.m.

** Tentative*
E—Endangered
T—Threatened
C.H.—Critical Habitat

Rulemaking Actions

COLUMBIA TIGER BEETLE STATUS REVIEW

The Service is reviewing the status of the Columbia tiger beetle *(Cicindela columbica)* to determine whether it should be proposed for listing as an Endangered or Threatened species (F.R. 3/3/80).

Formerly occurring on sandbars in the Columbia and Snake Rivers in Washington, Oregon, and Idaho, the beetle has been extirpated from these rivers because of water impoundments. Dam construction on the lower Salmon River in Idaho could destroy the only known remaining populations of the species.

The Service is seeking the views of the Governors of Oregon, Idaho, and Washington, and is soliciting from them information on the status of the Columbia tiger beetle. Other interested parties are invited to submit any factual information, especially publications and written reports, to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240, on or before June 2, 1980.

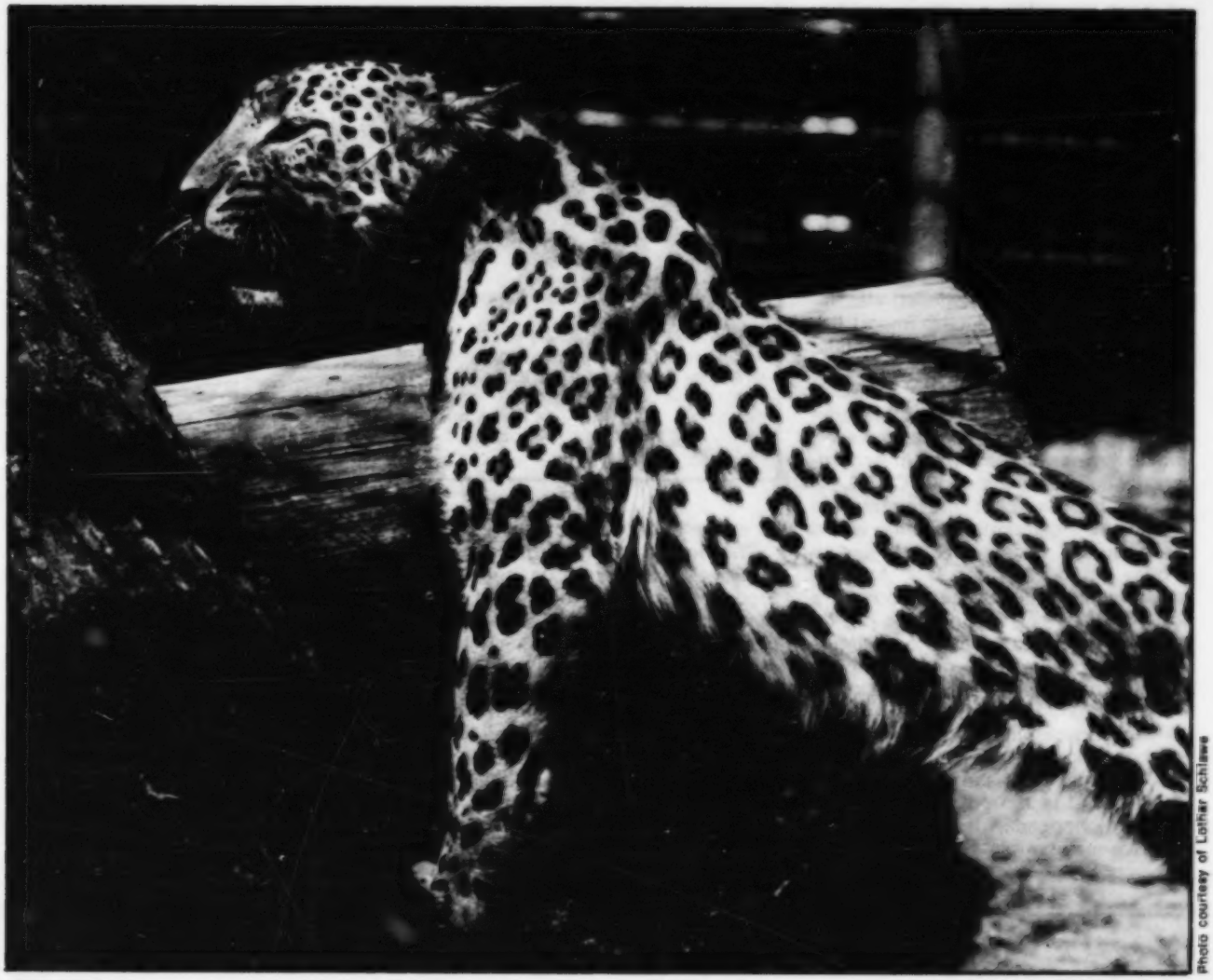

Photo courtesy of Lothar Schlawe

The Service has proposed reclassification from Endangered to Threatened status for the leopard, while urging its retention on Appendix I of CITES as a safeguard against commercial trade.

Leopard

Continued from page 1

Background

The leopard is the most widely distributed of any cat species. It occurs throughout most of Africa, and from Asia Minor to China, Korea, Japan, and Java; it is also found in India, Ceylon, and Southeast Asia. Nevertheless, widespread poaching and uncontrolled trade in its fur posed such a threat to the leopard that the Service listed it as an Endangered species in 1972, under the Endangered Species Conservation Act of 1969. In preceding years, thousands of the prized spotted pelts had been imported annually into the United States alone. The Service felt that, although the leopard occurs throughout a large area, no species of large cat could withstand such an enormous drain on wild populations. It became clear that protection was necessary, but the 1969 Act did not provide for classification as Threatened; therefore, based on the best biological data available at the time, the Endangered category was chosen. Importation of leopard fur was brought to an abrupt halt, and only a few live specimens have been allowed into the U.S. for propagation or scientific purposes since 1972.

Three major studies on the leopard have been conducted since the 1972 listing, and the results indicate that populations are stable or increasing in most sub-Saharan countries. The Service believes that there is an absolute minimum of 233,050 leopards throughout the entire area, with 1,155,000 being a "realistic" figure. On the basis

Continued on page 16

Leopard

Continued from page 15

of these population estimates, and because there is now an international treaty regulating trade in leopards and their products, it is thought that the Threatened classification under the 1973 Act would more accurately reflect the cat's status.

Proposed Action

Commercial traffic in leopard products, still a potential threat to wild populations, would continue to be banned under the Threatened classification, although permits to import live animals could be granted for scientific, propagational, educational, and zoological exhibition purposes. Restrictions against importation of legally-taken sport hunting trophies, however, would be eased somewhat in accordance with provisions under CITES.

Permits from both the country of origin and the importing country would be required under CITES before a trophy could enter the U.S. Applications would only be accepted on a case-by-case basis, and would not be approved unless scientific findings show that the activity or its purpose will not be detrimental to the survival of the leopard in the wild.

The Service plans to publish a recommendation that the leopard be kept on Appendix I of the Convention. If the leopard is moved to the less restrictive Appendix II, however, the Service may be required to reconsider its status under the Act.

The leopard is killed indiscriminately in some parts of Africa because of predation on livestock, and it is thought that allowing a limited amount of sport hunting would actually benefit this species by creating an incentive for its conservation. As the cat gains some economic value, countries might begin to manage it more carefully as another natural resource.

The proposal, which has been under consideration for several years, would reclassify the leopard as Threatened only in sub-Saharan Africa (with the exception of Somalia, where the current Endangered classification would be retained). It would remain listed as Endangered throughout all other portions of its range.

Comments Requested

The Service welcomes comments and additional data pertinent to the proposal from all interested parties. They should be submitted by June 24, 1980, to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

BOX SCORE OF SPECIES LISTINGS

Category	Number of Endangered Species			Number of Threatened Species		
	U.S.	Foreign	Total	U.S.	Foreign	Total
Mammals	35	251	286	3	21	24
Birds	67	145	212	3		3
Reptiles	11	55	66	10		10
Amphibians	5	9	14	2		2
Fishes	29	11	40	12		12
Snails	2	1	3	5		5
Clams	23	2	25			
Crustaceans	1		1			
Insects	6		6	2		2
Plants	49		49	7	2	9
Total	228	474	702	44	23	67

Number of species currently proposed: 35 animals (1 plant)
Number of Critical Habitats listed: 35
Number of Recovery Teams appointed: 68
Number of Recovery Plans approved: 32
Number of Cooperative Agreements signed with States: 34 (fish & wildlife) 4 (plants)

March 31, 1980

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

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ENDANGERED SPECIES TECHNICAL BULLETIN

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Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

Photo by Noel Snyder

A California Condor is seen here incubating an egg in its sandstone nest. The subsequent hatching was the first such event observed in the wild in over three decades.

CALIFORNIA CONDOR CHICK HATCHES

For the first time in over three decades, scientists have observed the hatching of a California condor *(Gymnogyps californianus)* in the wild. Biologists at the Condor Research Center in Ventura, California, say the chick began "pipping" its way through its greenish white, 5-inch egg on Sunday, May 11, and hatched sometime before dawn on Wednesday, May 14.

A 9-member team of Fish and Wildlife Service and National Audubon Society researchers had been surveying historic condor nesting sites in the southern mountains of California when they discovered the mated pair inspecting suitable nesting sites the first week in March. Observers spotted the solitary egg—laid sometime between the 15th and 16th of March—in a sandstone pocket on a cliff ledge several hundred feet high.

Biologists monitoring incubation of the egg through a telescope more than a quarter of a mile away noted that both birds took turns sitting on the nest. The actual incubation period (documented for the first time at about 59 days) appears very close to that of the Andean condor *(Vultur gryphus)*, also an Endangered cathartid that has been successfully bred in captivity at the Service's Patuxent Wildlife Research Center and other locations.

Dr. Noel Snyder, who coordinates Service research activities on behalf of the condors as part of the overall Service/National Audubon Society program based at the Ventura center, reports that the adults are very attentive to the nest, with both taking turns feeding their newborn. The researchers will keep the site under constant surveillance, and will attempt to follow the chick through to the point of independence from its parents. (The young bird should leave the nest in October-November, but will remain dependent on the adults for about another 6 months.)

The U.S. Forest Service has sealed off the nesting site and posted a guard in the area to prevent human disturbance, a serious problem throughout the condors' extensive range.

Although scientists are anxious to witness the activities of the newly hatched chick, Snyder cautions that this new breeding and behavioral knowledge will still not give us sufficient information to save the California condor. "We need so much more data on the problems now facing the condor and direct causes of its precarious status before we can ever hope to help the species recover. I'm afraid we must now depend on radio telemetry and other research to help us answer those questions." (See accompanying story.)

The research team is now also following the activities of a 1-year old condor discovered about the same time as the egg. The bird has left its nesting site, and is becoming increasingly independent.

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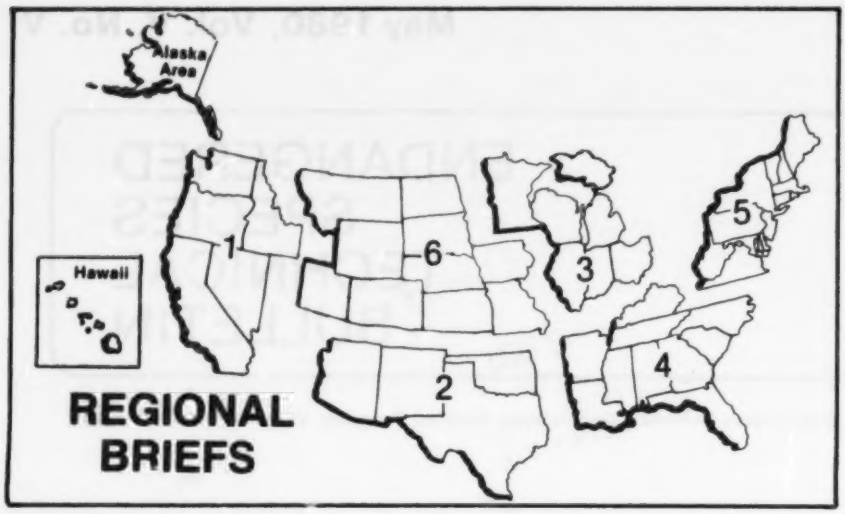

Endangered Species Program regional staffers have reported the following activities for the month of April.

Region 1. Five sub-adult whooping cranes *(Grus americana)* have returned to Idaho from their New Mexican wintering grounds. Four of the whoopers are at Grays Lake National Wildlife Refuge and one is reported near Bear Lake National Wildlife Refuge.

At Hawaii Volcanoes National Park, eight captive Nene geese *(Branta sandvicensis)* were killed by a dog which managed to dig its way under a protective fence. The eight geese represented approximately a third of the captive breeding stock.

Region 2. Kemp's Ridley sea turtles are nesting in Mexico with 3,000 eggs expected to be brought to the U.S. for hatching and release or grow-out studies (involving radio tracking, tagging, monitoring of environmental factors, and protection). Two hundred yearlings from 1979 stock, weighing about 3 lbs. each, will be returned to Mexico. The remainder will be released off the west coast of Florida in June.

The Service has begun trapping peregrine falcon spring migrants on Padre Island in cooperation with the U.S. Army. Over 100 birds have been trapped, banded, and had blood samples taken. There will be limited samples for comparison since some birds were previously trapped and had blood analyzed in past years.

A Houston toad *(Bufo houstonensis)* brochure has been published and copies are available from the Albuquerque Regional Office.

Region 4. As an update and correction of the report on snail darter *(Percina tanasi)* propagation on this page in the April 1980 BULLETIN, the Tennessee Valley Authority (TVA) has reported little success with ongoing efforts. The 1,662 eggs taken during March yielded only 30 larvae, none of which survived. The larvae generally succumbed at the rate of a few each day for no discernable reason. An additional 100 eggs obtained late in April, just as the spawning season was coming to a close, produced only 11 larvae. These have been placed into a more "natural" substrate in the lab in the hopes of obtaining better results.

TVA personnel sampled the Holston River transplant area on April 28 and 30 and turned up seven snail darter males in excellent spawning condition. Unfavorable water flow is expected to preclude further sampling this spring. A summer survey is planned to document spawning success.

Region 5. A public meeting concerning the proposed listing of Robbins' cinquefoil *(Potentilla robbinsiana)* as an Endangered plant was held in Concord, New Hampshire. Ten persons attended and all endorsed the proposal.

A progress meeting of the Virginia round-leaf birch committee was held in Roanoke, Virginia. The major topic of discussion was the drafting of the recovery plan.

Alaska Area. Recent counts of Aleutian Canada geese *(Branta canadensis leucopareia)* on the spring staging grounds in California indicate a population of over 1,400—the highest number ever recorded.

U.S. Fish and Wildlife Service
Washington, D.C. 20240

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COMMENTS SOLICITED ON PERMIT TO CAPTURE AND TAG CALIFORNIA CONDORS

As part of a multi-agency campaign to restore the ever-dwindling numbers of California condors *(Gymnogyps californianus)*, our Service's Patuxent Wildlife Research Center has submitted a permit application necessary to allow its participation in the capture, marking, and captive propagation of this critically Endangered species (F.R. 5/9/80—pp. 30996-30997).

The permit request represents the initial step in implementing the recovery plan for the condor—a comprehensive cooperative program involving our Service, the National Audubon Society, the U.S. Forest Service, the Bureau of Land Management, and the California Department of Fish and Game. Most experts now look to human intervention—in the form of an emergency habitat protection, tagging, research, and captive propagation effort—as the only hope for saving the estimated 20-30 surviving condors from continued decline to the point of extinction.

Under the proposed program, trapping of condors would begin in September 1980 after capture methods and transmitters tested on Andean condors *(Vultur gryphus)* in Peru this summer are proven successful. Initially, no more than three California condors would be captured and fitted with wing-mounted, solar powered radio transmitters this fall to assess the feasibility of continuing with the tried method of capture. If no unresolvable problems have arisen after one month of evaluation, then trapping would resume until a total of ten birds are fitted with transmitters. (No birds will be captured from February 1, 1981, to the latter part of the summer to prevent harassment during the breeding season.) Movements of the fitted birds would then be tracked throughout their range through an array of fixed antenna towers.

Once captured, all birds will be sexed by one or more methods (laparoscopy seems the most promising at this time), and blood and other tissue samples will be taken for analysis. The long-term objective of the captive propagation plan—intended to supplement the wild population—is to take five unpaired female condors and four unpaired males from the wild to provide a captive breeding stock of five pairs (to be distributed among three raptor propagation facilities). Project personnel will attempt to capture one sub-adult female between September 1980 and February 1981 to be paired with "Topatopa", the only (male) condor in captivity at the Los Angeles Zoo. (Further taking of captive stock—after the initial female—would not be implemented until the telemetry program demonstrates which birds would qualify as unpaired adults.)

The California Fish and Game Commission voted on May 30 in favor of authorizing a State permit to allow the taking of condors from the wild in their native California range.

(Permit issuance is conditioned by Service adoption of Fish and Game Department recommendations to promote Federal-State coordination throughout the research program.)

Applicable portions of the program would be initiated only after a thorough review of data received in the Andean condor release, capture, and tagging program this summer.

Interested persons are invited to comment on the Federal permit request by submitting written data, views, or arguments to the Director (WPO), U.S. Fish and Wildlife Service, Washington, D.C. 20240 *(reference PRT 2-6563)* by June 23, 1980.

RECOVERY SCHEDULED FOR CALIFORNIA LEAST TERN, BLUNT-NOSED LEOPARD LIZARD

Recovery plans have been approved by the Service for two Endangered species occurring in California, the California least tern and the blunt-nosed leopard lizard.

California Least Tern

The California least tern *(Sterna albifrons browni)* is a migratory subspecies with a breeding range usually described as extending along the Pacific coast from Moss Landing, Monterey County, to San Jose del Cabo, southern Baja California, Mexico. Migration routes and winter distribution of the California least tern are almost unknown. Because several races of least terns are recognized in western Mexico, and most differences in subspecific plumage are observable

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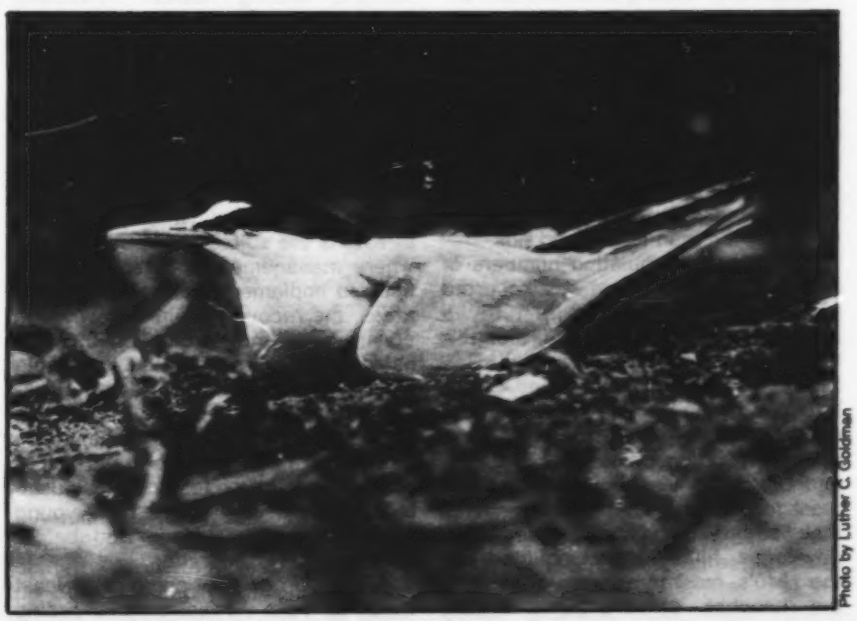
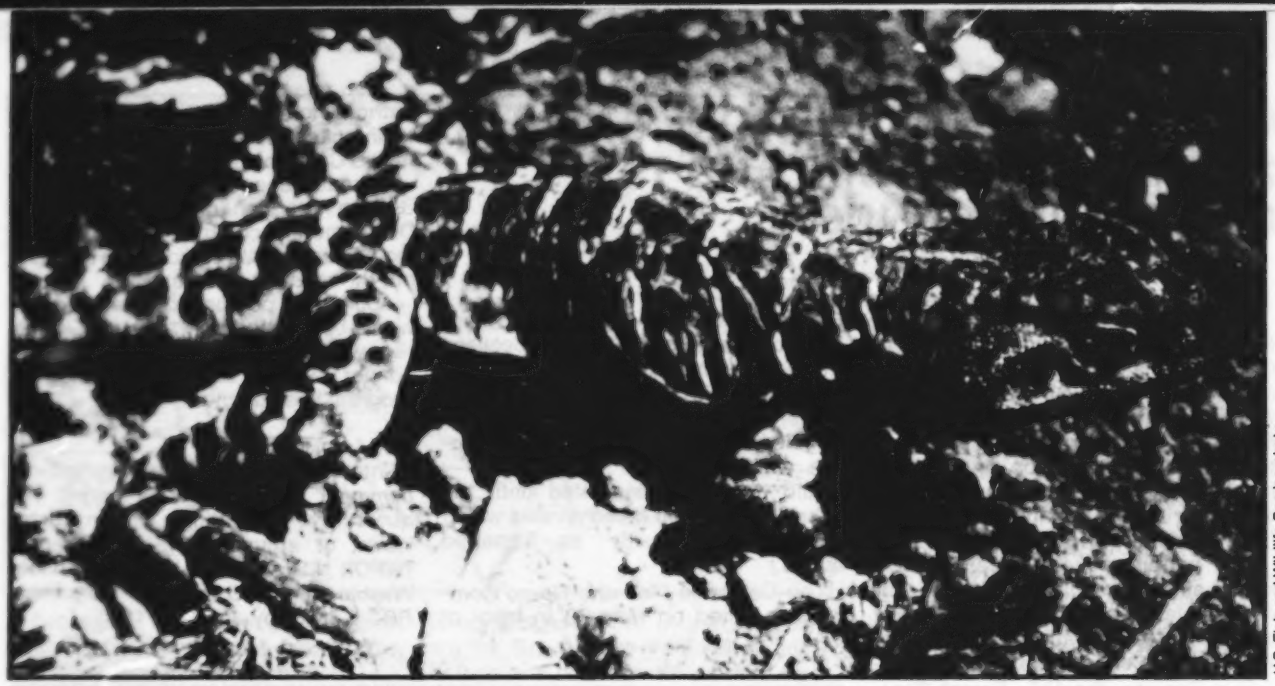


Photo by Luther C. Goldman

Ocean beaches were once common nesting grounds for California least terns, but human activity has made them uninhabitable for the subspecies.



U.S. Fish and Wildlife Service photo

Habitat destruction from agricultural development has been the most serious threat to the blunt-nosed leopard lizard.

RECOVERY FOR TERN, LEOPARD LIZARD

continued from page 3

only in breeding plumage, racial allocation of wintering birds is seldom possible without banding or special markings done prior to migration. From 1954 to 1972, 508 of the brids were banded on their breeding grounds; from 1973 to 1977, 714 least tern chicks were banded. As of 1977, 14 banded terns have been recovered, all in California during the breeding season.

Least tern nesting locations are usually in an open expanse of sand, dirt, or dried mud beside a lagoon or estuary serving as a food source. Ocean beaches were commonly used, but increased human activity on the beaches has made most of them uninhabitable for least terns. Recently, most observed nesting has occurred on mud and sand flats away from the ocean, or on man-made land fills.

A decline in population numbers of the California least tern has occurred since the early 1900's. In 1909, a colony of about 600 pairs along a three-mile stretch of beach in San Diego County was described. Construction of the Pacific Coast Highway along previously undisturbed beach, and the building of summer cottages and beach homes began to displace least tern colonies. At the same time, their bay feeding areas were being developed, filled in, and polluted. By the 1940's, most terns were gone from the beaches of Orange and Los Angeles Counties, and were considered sparse everywhere. Loss of nesting and feeding habitat, and human disturbance continue to threaten this subspecies.

To secure protection of the California least tern, the recovery plan suggests the breeding population be increased to at least 1,200 pairs (about double 1977 levels) in colonies in at least 20 coastal wetland ecosystems throughout their 1977 breeding range. The major limiting factor to the number of breeding pairs, according to the recovery plan, is the availability of suitable nesting habitat. Therefore, habitat protection, management, and acquisition have been given the highest priority in the recovery plan.

In California, only eight currently used colony nesting sites are protected under State, Federal, or other public ownership or jurisdiction. The others are in areas either affected by human disturbance, where land use threatens the suitability of the size, or where management programs are difficult to implement. For some of these areas, the recovery team believes that construction and protection of alternate nesting sites would be preferable to protecting currently used, but vulnerable sites.

The recovery plan also recommends the protection of feeding areas. Especially important are feeding areas used by least tern adults and their young after the nesting season and before their southern migration.

To encourage new colonies of least terns to form in potential breeding habitats and to allow for expansion of existing colonies, the recovery plan suggests development of new nesting sites and restoration of abandoned nesting and feeding areas. Least terns are receptive to man-made bare ground areas as nest sites as evidenced by the fact that 23 man-made land fills were used as nest sites from 1969 to 1977. In 1975 and 1976, 60 percent of known breeding pairs nested on man-made substrates.

The recovery team calls for the establishment of a Mission Bay Least Tern Coordinating Committee to guide local habitat enhancement and protection efforts in Mission Bay, in San Diego, a major least tern nesting and feeding area. The committee should include representatives from the City of San Diego, California Department of Fish and Game, U.S. Fish and Wildlife Service, Federal Aviation Administration, and California Least Tern Recovery Team. It is recommended that local Fish and Game Department biologists lead this program.

Other activities outlined in the recovery plan include protecting colonies from predation and human disturbance, and conducting research on the breeding biology of least terns and their habitat requirements and management.

Blunt-Nosed Leopard Lizard

The blunt-nosed leopard lizard *(Gambelia silus)* occurs in undeveloped areas of the San Joaquin Valley and surrounding foothills. Agricultural development in the valley has eliminated many leopard lizard popu-

lations, and the species' numbers continue to decline. According to one estimate, about 50 percent of the reptile's original range has been lost to agricultural and urban development by the 1950s. The status of the lizard in the foothills east of the San Joaquin Valley is uncertain, with no recent sightings north of Kern County.

Habitat destruction has been the most significant factor in reducing this species' range and population numbers. Leveling and cultivating of arid lands in the valley has proceeded at an alarming rate. Of the 618,800 acres of wildlands remaining in 1976, about 228,000 acres on the valley floor were identified as lizard habitat. By April 1979 this habitat had been reduced to 170,400 acres—a loss of 19,200 acres per year.

Other land uses, such as grazing and mineral development, have had a negative impact on the species' habitat.

The objective of the recovery plan is to restore blunt-nosed leopard lizard populations to 1979 levels or above by maintaining well-distributed, suitable habitat units. Current population densities are usually less than one individual per acre.

The plan calls for identification of all lands within the historical range of the species and a survey of the occurrence of the lizard in these areas. A series of aerial surveys conducted annually since 1976 has provided a set of county maps showing potential habitat remaining on the San Joaquin Valley floor in April 1979. (Mapping of potential habitat outside the valley has not been completed.)

According to the recovery plan, the restoration and maintenance of leopard lizard population levels is dependent upon a good understanding of the species' habitat requirements and biological needs. Basic habitat requirements have been determined and habitat types described. The lizards occur on sparsely vegetated plains, low foothills, canyon floors, and large washes and arroyos. They usually do not occur in dense brush or on steep slopes. Population densities can be correlated with the number of mammal burrows present. Where these burrows are scarce, the lizards construct shallow, simple-chambered tunnels under exposed rocks or along banks of earth. Abandoned or occupied kangaroo rat burrows and abandoned squirrel burrows are used as permanent shelter.

Other steps recommended by the recovery team include effective enforcement of laws protecting the lizard and its habitat, monitoring land use changes through ground and aerial surveys, monitoring population trends where possible, and encouraging local governmental agencies and landowners to establish zoning laws and plan development to minimize mortality and habitat destruction.

MANATEE RECOVERY SLATED

In a continuing effort to improve the status of the West Indian manatee *(Trichechus manatus)*, a critically Endangered marine mammal, the Service has approved a recovery plan that identifies necessary actions for preventing further decline of the species in U.S. waters. Earlier this year, the Service designated a portion of Kings Bay in Florida's Crystal River as an emergency refuge for the manatee (see January 1980 BULLETIN) and established restrictions for water-related public use on Merritt Island and Chassahowitzka National Wildlife Refuges (see February 1980 BULLETIN).

The thrust of the recovery plan is minimizing human-caused injuries and mortalities to manatees. According to the plan, reducing mortality is the fastest and most direct method of stabilizing or increasing manatee populations. Of 305 dead manatees salvaged from April 1974, through June 30, 1979, 103 were human-related mortalities. More than half of these involved collisions with boats. The plan recommends examination of the nature, extent, and location of these injuries and mortalities through salvage and necropsy, rescue and rehabilitation, and observation of interactions between manatees and objects that harm or kill them.

Minimizing habitat alteration, degradation, and destruction is another objective of the recovery plan. To accomplish this, the recovery plan has outlined the need to identify habitats of special biological significance to manatees, characterize these habitats, identify potential hazards to manatee habitats, and monitor the status of essential habitats.

The manatee is currently protected under the Florida Manatee Sanctuary Act of 1978, which established the entire State of Florida as a "refuge and sanctuary for the manatees," the Marine Mammal Protection Act of 1972, and the Endangered Species Act of 1973. A continued cooperative effort between Florida and the Federal Government will be required for the successful implementation of this recovery plan.

CITES ANNUAL REPORT, APPENDICES LISTS AVAILABLE

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Annual Report for 1978 is available for sale from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 for $4.75. To order a copy, refer to stock number 024-010-00542-4. The annual report was prepared by the Service's Wildlife Permit Office.

The Wildlife Permit Office has reprints of the CITES appendices as amended at the meeting of party nations in Costa Rica in March 1979. Copies are available in limited supply from the U.S. Fish and Wildlife Service, Wildlife Permit Office, Department of the Interior, Washington, D.C. 20240.

NEW PUBLICATION

A manual, *Threatened and Endangered Plants of Alaska,* was published jointly by the U.S. Forest Service and the Bureau of Land Management. Including descriptions of over 30 plant taxa and their habitats, the manual is designed for use as a field reference. Copies are available from either Steve Talbot or Lyle Linnell, Bureau of Land Management, State Office, 701 C Street, Box 13, Anchorage, Alaska 99513.

RULEMAKING ACTIONS
APRIL 1980

ENDANGERED STATUS, CRITICAL HABITAT SET FOR RED-BELLIED TURTLE

One of the North America's rarest reptiles, the Plymouth red-bellied turtle *(Chrysemys rubriventris bangsi)*, is now protected in its only known habitat in Massachusetts with final Service designation of Critical Habitat and Endangered classification (F.R. 4/2/80).

Background

The Plymouth red-bellied turtle was initially proposed for listing as an Endangered species, with 11 ponds proposed for designation as Critical Habitat, on May 19, 1978 (see the June 1978 BULLETIN) subsequent to a review of its status previously initiated by the Service (F.R. 6/6/77).

In accordance with 1978 amendments to the Endangered Species Act, the initial Critical Habitat proposal was withdrawn on March 6, 1979, and subsequently reproposed on September 13, 1979, to include an area approximating 7,000 acres in Plymouth County, Massachusetts, on the basis of new information submitted by Dr. James D. Lazell, Jr. (see the October 1979 BULLETIN). Public meetings and hearings on the Critical Habitat proposal were held on October 17, 1979, and on January 15 and 29, 1980.

Status and Threats

While its population was estimated at under 200 in the Service's original listing proposal, recent surveys indicate that possibly no more than 50 Plymouth red-bellies survive today. Only 41 animals were captured in intensive surveys conducted since 1978 by Dr. Terry Graham (under contract to the Service). All have been found in ponds within the area now designated as Critical Habitat in Plymouth County (with the turtle's existence as yet unconfirmed in Dukes County, where it was known to occur).

This species is extremely vulnerable to habitat modification, primarily in the form of housing development and road construction, which has been a major threat. There have been reports of human harrassment, and collection and predation may also threaten the turtle's survival.

The turtle is known to wander extensively (especially in search of nesting sites), and to bask and feed on lands surrounding the ponds on which it depends. While the 11 ponds proposed are included in the final Critical Habitat for the turtle, the surrounding areas have been reduced from that originally proposed to a total of 3,269 acres, based on Graham's studies of the needs and ecological requirements of the species. As far as can be determined, the designated area contains sufficient space for the population to survive and reproduce successfully.

Any significant alteration of pond water levels (as by groundwater pumping) or quality (as from siltation from land clearing or pollution) which would reduce or eliminate vegetation or aquatic prey items could adversely modify the turtle's Critical Habitat, as aquatic vegetation serves as both food and shelter for the species. Shoreline modification, filling, and dredging for beaches, dikes, real estate development or other similar activities or the draining of wetlands could also affect water quality, levels of shoreline, and nesting and over-wintering sites for the species.

[While there is considerable evidence suggesting that the generic name be limited to painted turtles, there remains some controversy as to the proper name for this species. Until taxonomic work is published on this generic separation, the Plymouth red-bellied turtle will be listed as *Chrysemys (=Pseudemys) rubriventris bangsi* to eliminate confusion.]

BONYTAIL CHUB ENDANGERED

Habitat alteration and other factors have so reduced the numbers of the bonytail chub *(Gila elegans)* that the Service has listed this fish as an Endangered species (F.R. 4/23/80).

Once found in the larger turbid rivers throughout the Colorado River basin, the bonytail has been on the decline since the early 1960's. Recent surveys of streams and reservoirs within its historic range indicate that the species is now confined to Lake Mohave along the Arizona and Nevada border. Chubs have not been located in the Green, Gunnison, Gila, and Salt Rivers where they were known to survive in eddies adjacent to swift waters.

Impoundment and diversion of the Colorado River and its tributaries has been a major factor threatening the bonytail's survival, coupled with competition and predation from introduced fish species. (Exotics now outnumber native fishes in the Colorado River basin.)

The population of bonytail chubs within Lake Mohave consists of only old individuals, and biologists have never observed successful reproduction within the reservoir. Lake Mohave's cold tailwaters do not offer the warm (65° F) temperatures needed for spawning, thereby precluding the species' successful utilization of this artificial habitat. Unless reproduction is achieved, remaining populations in the reservoir will likely disappear as the fish senesce and die. (Attempts are now under way to propagate bonytails in captivity at the Service's Willow Beach Fish Hatchery in Arizona.)

Because the area now inhabited by the bonytail chub does not provide adequate sites for breeding, reproduction, and the rearing of offspring, Critical Habitat may not now be determined for this species under the requirements of the Endangered Species Act, as amended.

The species had been proposed for Endangered classification on *April 24, 1978* (see the *May 1978* BULLETIN).

Reference Note

All Service notices and proposed and final rulemakings are published in the *Federal Register* in full detail. The parenthetical references given in the BULLETIN—e.g., (F.R. 1/17/80)—identify the month, day, and year on which the relevant notice or rulemaking was published in the *Federal Register*.

ENDANGERED STATUS FOR GOODENOUGH GAMBUSIA

The Goodenough gambusia *(Gambusia amistadensis)*—a fish now extirpated from its only native habitat—has been listed by the Service as Endangered (F.R. 4/30/80).

Known only from Goodenough Spring, a tributary to the Rio Grande River in Val Verde County, Texas, the wild population of this gambusia disappeared following destruction of its habitat by U.S. Army Corps of Engineers impoundment activities. In July 1968, backwaters of the Corps' Amistad Reservoir began permanent flooding of this area, leaving the spring under more than 70 feet of silt-laden water with no evidence of surviving gambusia.

Today, the Goodenough gambusia exists only in captivity at the University of Texas and at the Dexter National Fish Hatchery in New Mexico. (As a result, Critical Habitat determination as called for under the Endangered Species Act as amended would not be prudent for the species at this time.) The Service hopes that it may eventually be possible to reestablish the species in the wild.

The species was proposed for Endangered classification on August 15, 1978 (see the September 1978 BULLETIN).

CALIFORNIA MOTH LISTED AS THREATENED

The Kern primrose sphinx moth *(Euproserpinus euterpe)*, occurring only in the Walker Basin of Kern County, California, has been classified by the Service as a Threatened species (F.R. 4/8/80).

Once thought to be extinct, the Kern primrose sphinx moth was rediscovered in a barley field in Kern County in 1974—apparently in the same area where it was first collected. Due to its extremely low numbers and susceptibility to collecting, Dr. Paul M. Tuskes petitioned the Service to list the insect for protection under the Endangered Species Act in March 1977. The Service subsequently published a proposal to list the species as Threatened on July 3, 1978 (see the August 1978 BULLETIN), and held a public meeting on the proposal on September 18, 1979.

Occurring in very low densities only in the Walker Basin, the largest colony of moths occupies a barley field on a cattle ranch where present management will not likely threaten the species. (Any changes in land management practices on other habitat within the Walker Basin could affect its populations, however.)

Due to its rarity and restricted distribution, potential overcollection is considered a major threat to the species. It has been estimated that single specimens may be worth as much as $100 to sphingid moth collectors. Collection of females—more vulnerable as they fly more slowly than males—could affect the reproductive success of the moth.

In 1979, when a larger than usual number of moths was observed (apparently representative of several different year's age classes that emerged simultaneously under favorable weather conditions), many females were observed ovipositing on filaree—an exotic weed unsuitable as a larval host plant. It is believed that natural selection is currently strongly favoring females which lay eggs on the larval food plant, an evening prim-

continued on page 8

PUBLIC MEETINGS/HEARINGS

Due to the often unavoidable short notice in scheduling public meetings and hearings (in compliance with 1978 Amendments to the Endangered Species Act) for certain listing and Critical Habitat proposals, we regret that we cannot always relay adequate notice to our readers. Until further notice, we will attempt to provide available information through this column. Due to space limitations and uncertainty of *Federal Register* publication dates, summaries of pertinent proposed rulemakings may not necessarily accompany meeting notices, but may be included in a subsequent issue of the *Bulletin*.

Species/Action	Affected State(s)	Locations of Meetings/Hearings	Date	Time
Devil's River minnow: Reproposed C.H.	TX	Meeting: Del Rio Civic Center, Del Rio	6/12/80	7:00 p.m.
Leon Springs pupfish: Reproposed C.H.	TX	Meeting: Commerce Bldg., Ft. Stockton	6/13/80	7:00 p.m.
Coachella Valley fringe-toed lizard: Reproposed C.H.	CA	Meeting: Palm Springs Spa Hotel, 100 N. Indian Ave. & Tahquitz Drive, Palm Springs	6/20/80	7:30 p.m.
		Hearing: (as above)	7/7/80	7:30 p.m.
Mountain golden-heather: Proposed T and C.H.	N.C.	*Meeting: Western Piedmont Community College Auditorium, Morganton	7/1/80	7:00 p.m.

** Tentative*
E—Endangered
T—Threatened
C.H.—Critical Habitat

RAPTOR MEETINGS

The Sierra Club is sponsoring the 1980 PENNSYLVANIA RAPTOR CONFERENCE to be held Saturday, June 14, from 9:30 a.m. to 5:30 p.m. at Dickinson College in Carlisle. The conference is non-technical in nature and will focus on problems relating to birds of prey in Pennsylvania. If you are interested in attending, write to the Sierra Club, P.O. Box 135, Cogan Station, Pa. 17728. Fees are $3.00 for preregistration and $3.50 for walk-in registration.

A two-day SYMPOSIUM ON THE BALD EAGLE IN WASHINGTON will be held June 14-15 at the Seattle Aquarium, Pier 59 in the Waterfront Park. Proceedings of the Symposium will be published and are included in the registration fee of $5.00 (covering attendance of the symposium only). A $14.00 fee includes dinner Saturday night at the Edgewater Inn. Send registration fees to Washington Bald Eagle Symposium, c/o Seattle City Light, Environmental Affairs, 1015 Third Avenue, Seattle, Washington 98104.

GPO 311-311

CALIFORNIA MOTH

continued from page 7

rose *(Oenothera contorta epilobioides)*. Collecting during the flight and oviposition period could therefore reduce the genetic variability necessary to insure maintenance of a fit population.

The publication of maps detailing the location of the Kern primrose sphinx moth would make this species even more vulnerable to taking by collectors. The Service has therefore determined that the designation of Critical Habitat for the insect would not be prudent.

FIVE MUSSELS UNDER REVIEW

The Service is reviewing the status of five mussels found in Alabama and Mississippi to determine if they should be listed as Endangered or Threatened species (F.R. 4/11/80). All five species—the Curtus' mussel *(Pleurobema curtum)*, Marshall's mussel *(Pleurobema marshalli)*, Judge Tait's mussel *(Pleurobema taitianum)*, penitent mussel *(Epioblasma penita)*, and stirrup shell *(Quadrula stapes)*—typically inhabit silt-free shoal areas of sand and/or gravel, with a moderate to swift current.

The Service is seeking the views of the Governors of Mississippi and Alabama and any other interested parties, and requests any data relating to the status, distribution, population trends, or potential threats to these species. Also requested is information on areas that may qualify as Critical Habitat, and any associated economic or other impacts of such a designation.

Information should be submitted on or before July 11, 1980, to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

BOX SCORE OF SPECIES LISTINGS

Category	Number of Endangered Species			Number of Threatened Species		
	U.S.	Foreign	Total	U.S.	Foreign	Total
Mammals	35	251	286	3	21	24
Birds	67	145	212	3		3
Reptiles	12	55	67	10		10
Amphibians	5	9	14	2		2
Fishes	31	11	42	12		12
Snails	2	1	3	5		5
Clams	23	2	25			
Crustaceans	1		1			
Insects	6		6	3		2
Plants	49		49	7	2	9
Total	231	474	705	45	23	68

Number of species currently proposed: 35 animals (1 plant)
Number of Critical Habitats determined: 36
Number of Recovery Teams appointed: 68
Number of Recovery Plans approved: 35
Number of Cooperative Agreements signed with States: 35 (fish & wildlife) 4 (plants)

April 30, 1980

SNAKE RIVER SNAILS REVIEWED

Two snails, remnants of the extensive late Pleistocene freshwater fauna of southern Idaho, are being reviewed by the Service to determine if a proposal to list them as Endangered or Threatened species is warranted. The Bliss Rapids snail (Family Hydrobiidae) and Snake River physa snail *(Physa* sp.) are both found in the shallow water riffle habitat in the A. J. Wiley Reach of the Snake River, with the Snake River physa snail also found near Homedale, Owyhee County, Idaho.

The habitat of both species in the A. J. Wiley Reach is threatened by impoundment from the Idaho Power Company's A. J. Wiley Project.

The Service is soliciting any additional information on these species, including data on their taxonomic status, distribution, habitat requirements, recommended Critical Habitats, and possible economic or other impacts of a Critical Habitat designation. Comments and data should be submitted on or before July 22, 1980, to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

May 1980, Vol. V, No. V

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ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

Commercial Importation under Consideration for Three Threatened Kangaroos

Subsequent to a "5-year" review of the status of the red, eastern gray, and western gray kangaroos, the Service has proposed to permit commercial importation of the products of these animals from their native habitat in Australia for a trial period of two years (F.R. 6/16/80).

Background

All three species of kangaroos involved in the subject proposal were listed as Threatened under the Endangered Species Act of 1973 on December 30, 1974, subsequent to an earlier notice proposing all three for listing as Endangered (F.R. 4/1/74).

Under the initial proposal, the Service believed that the status of the red kangaroo *(Megaleia rufa)*, the eastern gray kangaroo *(Macropus giganteus)*, and the western gray kangaroo *(Macropus fuliginosus)*, and threats to their continued existence warranted the highly protective Endangered classification. Upon the receipt of data and comments subsequent to its listing proposal, however, the Service determined that mortality factors (such as poaching, commercial and sport hunting, and excessive drought) were apparently not so substantial as to lead to the extinction of the three marsupials, and habitat losses were not as significant as once thought in light of the total range of the

Continued on page 11

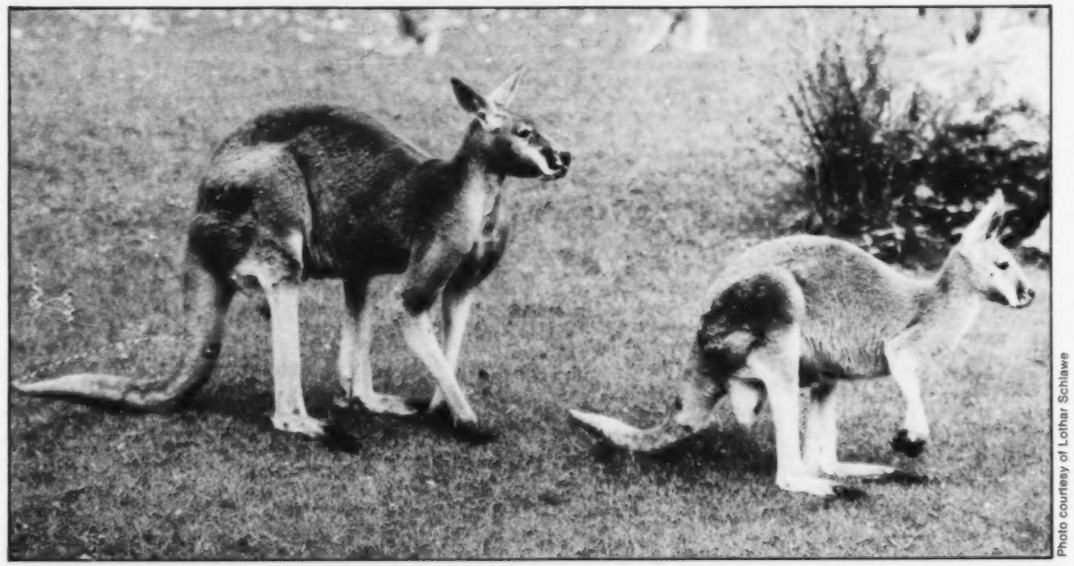

Photo courtesy of Lothar Schlawe

If adopted, the Service proposal would allow for regulated import of kangaroo parts and products into the U.S. for a 2-year trial period.

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REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of June.

Region 1. Area Office boundaries will be realigned beginning October 1, 1980. The Sacramento Area Office will cover California, Boise will be responsible for Idaho and Nevada, the Olympia office will have Washington and Oregon, and the Honolulu Area Office will cover Hawaii and the Pacific Islands, as it did previously.

A new population of *Mirabilis maclarlanei* has been found in Idaho's Salmon River drainage. This new population – more than doubles the number of plants from the three previously known populations.

Region 2. Jack Woody participated in a panel discussion conducted by the Southwestern Audubon Society. Representatives of the National Audubon Society and the New Mexico Department of Fish and Game met to discuss the ongoing Grays Lake program of establishing a new migratory flock of whooping cranes *(Grus americana)*.

The bald eagle *(Haliaeetus leucocephalus)* nesting study on the Verde and Salt Rivers in Arizona began in March and has turned up five fledglings. A juvenile tagged last year has also apparently returned to the area.

Region 3. The 1980 census of the Kirtland's warbler *(Dendroica kirtlandii)* population in Michigan was up 30 pairs from last year's census. The inventory found 242 pairs in the six-county survey. The goal of recovery efforts for this species is a population of 1,000 pairs. A recent fire in the warbler's nesting habitat (see June 1980 BULLETIN) did not affect the population. The birds simply left the area for other sites.

Region 5. Service personnel met with the U.S. Forest Service, Appalachian Mountain Club, and University of New Hampshire representatives to discuss the Critical Habitat designation of Robbins' cinquefoil *(Potentilla robbinsiana)* and the relocation of segments of the Appalachian Trail. All parties agreed to the proposed route of the new trail which should help reduce the human impact on the existing population of the plant.

A U.S. Fish and Wildlife Service Certificate of Appreciation Award was presented to Professor Claude E. Phillips on June 13, 1980 at the Delaware Natural History Society banquet held in honor of his 80th birthday. Professor Phillips is recognized as the leading authority on the flora of the Delmarva Peninsula.

Region 6. The Service reports that humpback chubs *(Gila cypha)* captured from the Colorado River below Grand Junction, Colorado, have spawned successfully. A total of 18,000 eggs taken from wild females were fertilized on location with sperm from wild males. The eggs were air shipped to Willow Beach National Fish Hatchery in Arizona, where they were successfully hatched. Also this year, captive humpbacks at Willow Beach successfully spawned.

The Riverside Irrigation District and Public Service Company of Colorado have filed suit against the Service and the Army Corps of Engineers regarding the proposed Wildcat Reservoir on a tributary of the South Platte River. The

U.S. Fish and Wildlife Service
Washington, D.C. 20240

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Iowa, Kansas, Missouri, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Alaska Area:** Alaska.

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plaintiffs have requested $181 million in damages. The Service issued a biological opinion which indicated that the operation of the reservoir would likely jeopardize the continued existence of the whooping crane and adversely modify its Critical Habitat in Nebraska. (The cabinet-level Endangered Species Committee later conditionally exempted the "Greyrocks Project" from compliance with Section 7 of the Endangered Species Act—see the December 1978 and January 1979 BULLETINS.) Jurisdiction for the case has not been determined.

DEATH OF CALIFORNIA CONDOR CHICK UNDER INVESTIGATION

The Service has announced the results of an autopsy on the California condor chick that died during examination by a biologist on June 30, indicating the cause of death as "shock and acute heart failure." According to Service officials, the heart failure resulted in excess fluid in the lungs, depriving the bird of adequate oxygen.

The San Diego Zoo's autopsy report said that moderate obesity—apparently common in wild baby chicks while they are still in the nest—could have contributed to the chick's death. Separate analyses were also conducted by the Service's Patuxent Wildlife Research Center, indicating only trace amounts of environmental contaminants in the bird.

The Service is conducting a thorough review of the circumstances surrounding the condor's death, and will await these findings (along with the results of experiments with Andean condors and other vultures in South Africa and Peru) before reapplying for permits necessary to continue work as part of the California condor recovery program.

U.S. Fish & Wildlife Service Photo

This 45-day old California condor was successfully examined prior to the older chick, which failed to survive the ordeal.

EAGLES ON THE UPSWING IN THE CHESAPEAKE

Our national symbol is holding its own here in the vicinity of the Nation's capitol, where the productivity of the bald eagle *(Haliaeetus leucocephalus)* is up again this year in the Chesapeake Bay.

A record total of 72 eagles fledged this spring from 49 successful nests in Maryland, Virginia, and Delaware—actually exceeding the previous known high of 1936, when 71 eagles were hatched in 35 nests in the Bay area.

The 1980 tallies are especially significant for Virginia, where an unprecedented 35 chicks were produced from 23 nests within the study area—possibly a sign that the birds are on the rebound from declines in the 1960's likely due to environmental contamination.

Tri-State Banding Project

Almost all of the active nests were visited and climbed to by members of the Chesapeake Bay Bald Eagle Banding Team, a project of the National Wildlife Federation's Raptor Information Center (RIC), organized in 1977 to assess the status, life history, productivity, and problems of nesting bald eagles in the Bay area. Banding efforts and associated studies are sponsored by the Maryland, Virginia, and Delaware wildlife agencies, with 3-to-1 matching fund assistance from the Service through the Federal endangered species grant-in-aid program. (See our feature in the August 1977 BULLETIN.)

The RIC team began 1980 field work around May 1, visiting almost all 85 active eagle nests (and scaling 45 of the 49 successful nest trees) to band young birds and collect data important to the study effort. By mid-June, U.S. Fish and Wildlife Service bands and special triple thickness color vinyl tags had been placed on 63 eaglets (30 in Maryland, 31 in Virginia, and 2 in Delaware), promoting their visual identification throughout the Bay area. (Four of the successful nests could not be visited when landowners failed to permit entry onto their properties, while another three chicks were approaching fledging and deemed too old to attempt banding.)

With an overall nest success rate of 58 percent, productivity is up this year to an encouraging .85 young per active nest, compared with .71 in 1979, .65 in 1978, and .82 in 1977 (the first year of the banding project, when 63 eaglets were fledged in and around the Chesapeake).

While this year's productivity in the Chesapeake was true to "Mother Nature," Virginia's eagle population had been bolstered by human hands during the past 3 years of the banding project. In cooperation with the Service's Patuxent Wildlife Research Center in Laurel, Maryland, two captive-produced eggs were placed in a previously unproductive nest near the Mason Neck National Wildlife Refuge in 1977. One hatched, and the eaglet successfully fledged (although transplant efforts the following year proved unsuccessful). Two additional eaglets born in captivity at the Patuxent Center were successfully introduced to a Virginia nest in 1978, with another three chicks adopted at two Virginia nests in 1979. (See our feature on Virginia's endangered species activities in the February 1979 BULLETIN.)

Since the project's inception, cooperators have learned a great deal about the life history of Chesapeake Bay bald eagles—all of which should better equip them to protect essential nesting habitat, determine probable

Photo by Craig Koppie

This year's Chesapeake Bay eaglets have been fitted with orange vinyl triangular tags with symbols denoting different nest locations.

Bander Keith Cline is about to fit this young eagle with a radio transmitter, so that specialists may track its movements after fledging. (Designed to signal whether the bird is moving or inactive, the unit amounts to no more than 2 percent of the eagle's body weight.)

Photo courtesy of the Raptor Information Center

sources of contamination and disturbance that may inhibit reproduction, and learn the migratory habits of the eaglets once they have fledged.

For example, we know that the loblolly pine (with trees approaching 100 feet in height) is the eagle's favorite nest tree in the Chesapeake. A surprising array of prey items has been found in and around eagle nests, including the remains of turtles (especially diamondbacks), eels, a variety of fish species, muskrat and other small mammals (last year accounting for the loss of a domestic cat), various waterfowl and even raptors (with evidence of a red-tailed hawk, merlin, and great-horned owl found in 1979).

Watching the Birds

Under contract to the Virginia Commission of Game and Inland Fisheries (utilizing Federal aid assistance from the Service), Dr. Mitchell Byrd and a graduate student at the College of William and Mary have initiated a monitoring program designed to learn more about the habitat needs, range, and feeding and nesting habits of bald eagles in the Bay area.

Seven eaglets in nests along the Rappahanock River in Virginia were fitted this year with radio transmitters to better understand their movement patterns upon fledging. David Wallin, who coordinates the project as part of his graduate work at William and Mary, says the information gained from tracking efforts should prove valuable in identifying foraging sites to pinpoint possible sources of contamination.

Continued on page 6

Chesapeake Eagles

Continued from page 5

Results from the 7 birds radio-tagged by Wallin last year (3 near the Potomac, 3 from the Rappahanock, and 1 from the first known nest along the James River since 1973) indicate that the eaglets stay in the vicinity of their nests for about two months after fledging, moving to isolated shore lines where they spend 40 to 70 percent of their time. The biologists were able to follow the birds for some two and a half months before they began to disperse apparently beyond the range of the transmitters. (The use of fixed-wing aircraft with special antennas should prolong monitoring this year.)

Wallin is also studying sibling interactions and feeding activities with the aid of two remote video cameras, placed in trees near two active Virginia nests this year by the banding crew. (There appears to be a fair amount of aggression between the young eagles, with older birds generally more successful in obtaining food items.) The cameras also permit the collection of data on prey items, the frequency of food deliveries, weather conditions, and other factors that could affect nesting success.

Pesticide Analyses

For the past 4 years, RIC climbers have not only banded chicks but have also visited abandoned eagle nests throughout the Bay, collecting eggs and eggshell fragments for analysis at the Service's Patuxent Center. Of the 36 nests found abandoned this year, 35 were visited from which 8 eggs were salvaged along with 10 collections of eggshell fragments.

According to Stanley Wiemeyer, who coordinates eagle egg pesticide analyses for the Center, some breeding eagles in the Chesapeake are still contaminated with fairly excessive levels of chlorinated hydrocarbons like PCBs, dieldrin, and DDE (a breakdown product of DDT). But, because of the small and biased nature of the samples collected, it is still too early to establish a trend with regard to the impacts of environmental contamination on eagle productivity in the Bay.

Wiemeyer is now in the process of computerizing data on approximately 100 eggs collected between 1971 and 1979 from nests throughout the country in an attempt to determine relationships between contaminant levels, territory productivity, and shell thickness in bald eagles.

Pesticides may not be the only cause of nest failures in the Bay area, unfortunately, as evidence of human disturbance is often linked with nest abandonment. The researchers have noted population increases in remote or protected areas, while there has been a corresponding decline in breeding pairs where the human population is increasing. A large portion of the Bay's eagle nests occur on private property, possibly leaving them vulnerable to adverse land management practices.

Gary Taylor (Maryland Department of Natural Resources), leader of the Service-appointed recovery team for Chesapeake Bay eagles, reports that the recovery plan for this population should be in final draft form by the end of the summer. In the meantime, RIC plans to continue banding efforts through 1981, in the hope that sufficient data may be gathered to help restore the Chesapeake Bay bald eagle.

EAGLE COUNTS UP 30 PERCENT

A second annual mid-winter survey of bald eagles in the lower 48 States sponsored by the National Wildlife Federation in January has produced a preliminary total of 12,199 eagles—some 3,000 more birds than were sighted during the 1979 survey.

Taken during January 2-20 by some 2,900 counters representing 47 State, 7 Federal, and numerous private organizations, this year's census revealed the highest eagle population in Washington State, with 1,623 sightings. (Runners-up were Missouri, California, Utah, Oregon, Illinois, Colorado, and Oklahoma.)

William S. Clark, director of the Federation's Raptor Information Center, cautions that we should not look to the 30 percent increase as positive evidence that the bald eagle is making a comeback in the U.S. "We attribute the higher count mostly to the fact that our survey was more intensive this year, with more participants, better coordination, and coverage of more area." But Clark believes this year's figures do seem to show that we are not losing ground in our effort to save the bald eagle, with the number of young and immature birds especially encouraging.

Mike Pramstaller, who coordinated the survey effort, explains that "our survey is much more than just a bird count. State and Federal wildlife officials also learn a lot about the movements of wintering eagles and their habitat, so that they may determine which areas should be better protected."

Survey results are available from the Raptor Information Center, National Wildlife Federation, 1412 - 16th Street, N.W., Washington, D.C. 20036.

HACKED EAGLES NEST IN NEW YORK

Endangered species specialists in New York have announced an unexpected victory: Two bald eagles have been hatched in the wild by birds that were themselves reared at a hack site in the State in 1976.

Biologists first noticed the pair of 4-year old birds attempting to establish a home territory and nest earlier this spring, but were unable to confirm the presence of an egg. A ground check around the 1st of July, however, revealed two eaglets in the nest. Both appear healthy, and are expected to fledge around the end of July.

Peter Nye, coordinator of the State's endangered species program, called the event "truly historic," demonstrating that eagles in the wild in New York can now produce viable eggs with shells strong enough to withstand incubation. "It is a significant step toward our goal of restoring a breeding population of bald eagles in New York State," Nye said. Until this year, only a single active bald eagle nest remained in New York (from which a transplanted chick was successfully fledged in 1978—see the December 1978 BULLETIN on New York's program).

In the first 4 years of the program, 15 eagles were hacked at the Montezuma National Wildlife Refuge in central New York (where 5 more birds are being reared this season).

Unfortunately, biologists have been unable to band the eaglets because of an active honeybee hive directly under the nest.

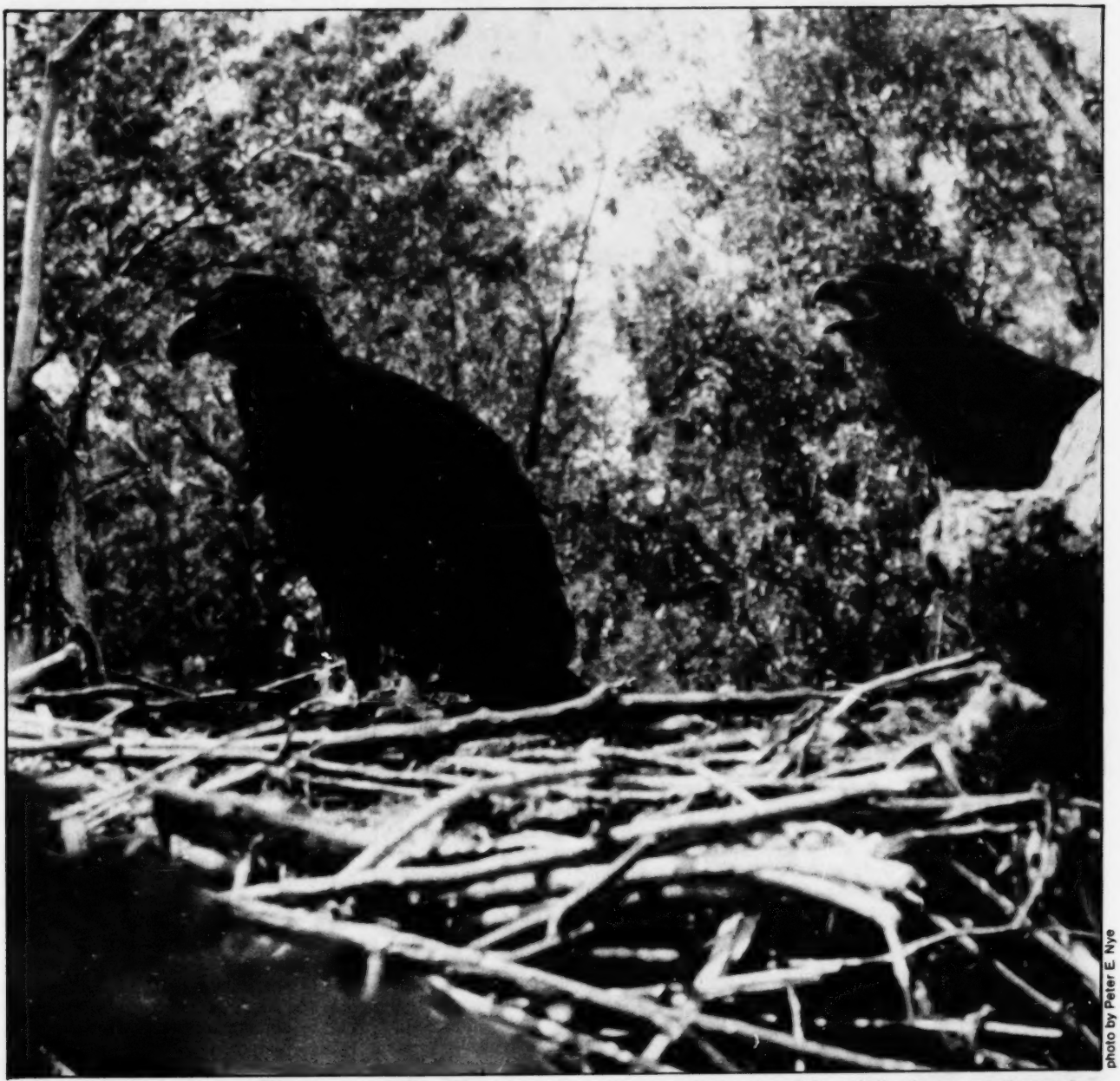


photo by Peter E. Nye

New York biologists were happily surprised to discover these two eaglets, produced by adults that were themselves "hacked" in the wild only 4 years ago. (Prior to this year's creation, only one active bald eagle nest had been known in the State for 15 years.)

Bald Eagle Honored In Manhattan

Over 5,000 people paused to view this exhibit, organized by a group of private citizens as part of the First American Bald Eagle Festival in Manhattan on June 20-22.

Situated at the Castle Clinton National Monument, the festival commemorated the 198th anniversary of Congressional designation of the bald eagle as our national emblem.

U.S. Fish and Wildlife Service photo

ARKANSAS PROMOTES EAGLE AWARENESS

photo courtesy of Arkansas Zoo

"Martha one-wing," a juvenile bald eagle, is shown here greeting Arkansas Governor Bill Clinton (right) as he proclaims Eagle Awareness Week (January 19-27, 1980) in the State. Arkansas recently became active in a campaign to educate the public about the need to conserve bald eagles and other endangered species, and next year plans to host an Eagle Awareness Month.

The State has asked us to share with the public its appreciation for the commendable efforts of Mr. Andrew Pursley (above, center), U.S. Fish and Wildlife Service special agent, in helping found the awareness program, which has generated needed public and financial support for eagle protection throughout the State.

RECOVERY SLATED FOR WATERCRESS DARTER

The Service has approved a recovery plan for the watercress darter *(Etheostoma nuchale),* an Endangered fish occurring in three springs in Jefferson County, Alabama.

At the time the watercress darter was listed as Endangered in 1970, the species was known from only Glenn Springs, which is located within 20 yards of Route 20, a highway with locally heavy traffic. Estimates of the numbers of individuals in this population have ranged from 400-700. Subsequent surveys turned up two new populations of watercress darters—one in Thomas Spring and the other in Roebuck Spring.

The primary threats to the existence of the watercress darter are habitat modification and degradation, a limited range, and gas bubble disease. The recent growth of shopping and residential zones in the Birmingham-Bessemer area has led to the paving of acres of land. (Rainfall cannot continue to recharge the springs when it is carried off parking lots into drains and gutters.)

High bacteriological counts have been made in water samples from Glenn Springs and Roebuck Spring. On August 25, 1977, a bacterial count was made from Glenn Springs that turned up 350 coliform per 100 ml. of water. The presence of coliform organisms in water indicates contamination from some source such as surface water or fecal material from man or animals. (A count of more than 4 coliform per 100 ml. is considered contaminating.) Samples from the Roebuck Spring basin, Roebuck Spring creek, and Roebuck Recreation Center resulted in readings of 490, 440, and 3,600 coliform per 100 ml. respectively. The high bacterial count apparently has its origin in sewage from septic tanks seeping into the ground water and surfacing at Roebuck Spring, especially after heavy rains.

Gas bubble disease can be caused by either high concentrations of nitrogen gas or high levels of bacteria in the water. A study of the Roebuck Spring population found that 15 of 30 adult specimens from the Roebuck Spring basin were affected by gas bubble disease. Seven of 30 adults were affected in the spring outflow creek immediately below the spring basin, and at the Roebuck Recreation Center (a little further downstream) no evidence of gas bubble disease was found. The study concluded that there is a progressive decrease in the disease with increasing distances from the spring basin.

The objective of the recovery plan is to prevent the extinction of the watercress darter by preserving, protecting, and enhancing its habitat; increasing darter populations within the species' present range; and establishing new populations, by transplantations within Jefferson County.

It is important, according to the Service-appointed recovery team, that preferred habitat and ecological requirements be strictly defined. The watercress darter appears to thrive in deeper, slow-moving backwaters of springs choked with aquatic vegetation such as watercress *(Nasturtium), Chara,* and *Spirogyra.* These allow for large populations of aquatic insects, crustaceans, and snails—the watercress darter's diet.

For all three populations, the recovery plan calls for the construction of low level dams to create spring-pond habitats, which are desirable for the species.

As for the gas bubble disease problem, the recovery team is unable to offer a solution. Replacement of the septic tanks by a sewage system might help, but it is possible that the disease is being caused by natural factors which have saturated the spring water with nitrogen gas.

Transplants are recommended by the team once the present populations have increased to the point where large numbers of individuals abound. Then transplants should be made from the healthiest population into suitable nearby springs within the Black Warrior River system in Jefferson County. Should the transplant populations thrive and reproduce, they should receive the same monitoring and protection afforded the now existent populations.

KEY DEER RECOVERY APPROVED

A recovery plan which has as its objective the stabilization of the Florida Key deer *(Odocoileus virginianus clavium)* population, as opposed to an effort to boost its numbers, has been approved by the Service. Although the population has apparently stabilized at around 350-400 deer, high mortality from road kills and a limited range keep this species in jeopardy.

A distinct geographical race of the Virginia white-tailed deer *(Odocoileus virginianus)*, the key deer is the smallest race found in the United States. The average weight of an adult male is 80 pounds and an adult female weighs about 63 pounds. The average shoulder height ranges from 24 to 26 inches.

The center of the Key deer population is Big Pine Key, Florida, with an estimated 200-250 deer. Road kills by automobiles are the most serious threat to the deer on Big Pine Key, accounting for 76 percent of known mortalities of key deer from 1968 to 1973. (Other mortalities were caused by drowning, combat between males, capture for tagging, and unknown factors.)

Key deer are strongly attracted to newly burned areas, and will feed extensively on new woody and herbaceous growth for up to 6-9 months. Availability of drinking water seems to influence the distribution of Key deer throughout their range. Periods of drought find the deer utilizing the larger keys, with water, in favor of the smaller keys without drinking water.

To preserve the Key deer, the plan not only emphasizes the importance of maintaining the population level and available habitat, but also the integrity of the subspecies. According to the plan, because the Key deer are the product of a unique system of selective forces (a restrictive, insular environment with no natural predators), management should involve the retention of those natural selection factors that influenced their evolution. Under no circumstances, according to the plan, should a captive, zoo-bred herd be considered for restocking purposes.

What the plan does call for, among other things, is the acquisition of more land for the Key Deer National Wildlife Refuge, established in 1957. Key deer habitat is being developed rapidly, and their range is adready extremely limited. The only way to insure adequate protection of this habitat is to incorporate it into the National Wildlife Refuge System.

Efforts to protect the herd and the integrity of the subspecies would include prohibition of hunting, restricting dogs from refuge lands, reducing speed limits, posting deer warning signs, and fencing highways except at trail crossing points.

Other items covered in the plan are public awareness, monitoring the deer population, experimenting with habitat manipulation, and conducting studies on the natural history and population dynamics of the Key deer herd.

Photo by Richard Thompson

Automobile collisions have taken their toll on key deer population numbers.

Rulemaking Actions

June 1980

TWO TEXAS PLANTS PROPOSED AS ENDANGERED

Two rare plants—the Texas poppy-mallow and Navasota ladies' tresses—threatened by the possible destruction of their native habitats have been proposed by the Service for listing as Endangered species (F.R. 6/18/80).

Navasota ladies' tresses

Possibly North America's rarest orchid, the Navasota ladies' tresses *(Spiranthes parksii)*, was first collected in 1945, but was later thought extinct until its rediscovery in 1978. Subsequent searches resulted in the location of a second population near the species' type locality in Brazos County, Texas. However, in 1979, only nine individuals could be located at these two sites.

Due to its limited occurrence and extraordinary distinctiveness, the species is extremely vulnerable to extinction due to habitat destruction and collecting. One of the two populations occurs adjacent to an urban area, where land development is inevitable, while the other population is on ranch land now used for deer hunting. (Any change in land management practices in this latter area could destroy the few individuals remaining.)

Poppy-mallow

Confined to a small area of deep sandy soil blown from alluvial deposits along the Colorado River, the Texas poppy-mallow *(Callirhoe scabriuscula)* is threatened by sand mining and other factors. Averaging 2 to 4 feet in height, this member of the mallow family is an erect, simple (or basically branched) perennial herb bearing wine-purple petals in an open cup.

Because of its erect habit, grazing and associated trampling have seriously reduced the species' number in some areas, where there has also been a marked reduction in plant vigor. Cultivation, rural development, and road construction have also reduced the size and range of remaining populations, all of which occur on private land where they are vulnerable to habitat alteration and collection. Sand mining poses an imminent threat to all existing populations within their habitat in only one Texas county.

Background/Comments Solicited

Both of the subject species were included in a July 1, 1975, notice of review on the basis of the Smithsonian Report to Congress listing these plants as two of those considered to be endangered, threatened, or extinct. Subsequently, the species were among approximately 1,700 vascular plants proposed for listing as Endangered on June 16, 1976. (This proposal was later withdrawn, as it was not finalized within time limits imposed under 1978 amendments to the Act.)

Because the publication of descriptive maps outlining their essential habitats would make these rare plants even more vulnerable to taking, the Service has determined that the designation of Critical Habitat is not prudent for either of these species at this time.

Comments as well as biological data in response to these proposals should be submitted by August 18, 1980, to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

Photo by Bonnie Amos

Proposed as an Endangered species, the Texas poppy-mallow is imminently threatened by sand mining operations.

Amargosa Vole Under Review

Acting in response to a petition submitted by Mr. Earl Baysinger of the Service, the Service is reviewing the status of the Amargosa vole *(Microtus californicus scirpensis)*—a small rodent once considered extinct—to determine if it qualifies for listing under the Endangered Species Act (F.R. 6/18/80)

Long thought to have vanished from its native habitat, this marsh vole was rediscovered in 1973 in southeastern Inyo County, California, where a population now thrives in the marsh community along the Amargosa River. Unfortunately, the known survivors are now subject to natural and human-related threats, including grazing and the burning of marshes.

Data on the status of and threats to the Amargosa meadow vole should be submitted to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

ENDANGERED STATUS PROPOSED FOR OAHU TREE SNAILS

Surviving members of *Achatinella*, an entire genus of tree snails nearly extinct from their Hawaiian habitat, have been proposed by the Service for listing as Endangered species (F.R. 6/26/80).

Known for its beauty, variability, and extreme localization, *Achatinella* formerly occurred throughout the forests of Oahu, once thought to cover most of the island. But by 1978, approximately 85 percent of the island's forest cover had been destroyed or altered. Fast-growing exotics were introduced, diluting *Achatinella's* natural habitat. Forest fires and human disturbance opened up mountain slopes to non-native ferns and other plants. Since the turn of the century, most native woodlands below 1,200 feet—and with them more than 20 species of *Achatinella*—have disappeared from Oahu.

Due to their small geographical ranges, low reproductive rates, lack of defense mechanisms, and dependency on natural forest conditions, species of *Achatinella* remain highly vulnerable to human activities.

The genus has been seriously impacted by human-introduced predators (rodents like the arboreal roof rat *(Rattus rattus)* and *Euglandina rosea*, a carnivorous snail imported to control *Achatina fulica*, the giant African snail —also introduced to the island).

Overcollection is another major threat to the tree snails, prized for their beautiful, varied, and often rare shells. (Probably millions of snails have been collected since the 1800's.)

Of the 41 known *Achatinella* species, it is now believed that only the following exist:

Achatinella apexfulva

A. bellula	*A. lila*
A. bulimoides	*A. lorata*
A. byronii	*A. mustelina*
A. concavospira	*A. pulcherrima*
A. curta	*A. pupukanioe*
A. decipiens	*A. sowerbyana*
A. fulgens	*A. swiftii*
A. fuscobasis	*A. toeniolata*
A. leucorraphe	*A. turgida*

The remainder are believed extinct.

Comments on the subject proposal, and any additional data on the status of and threats to species of *Achatinella*, should be submitted by August 25, 1980, to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

A public meeting on the subject proposal has been scheduled for Tuesday, August 19, at 8:30 a.m. in Conference Room 7322 in the Federal Building, 300 Ala Moana Blvd., in Honolulu, Hawaii.

(Critical Habitat has not been proposed for these species, as publication of definitive maps would make *Achatinella* more vulnerable to taking.)

KANGAROOS

Continued from page 1

species. All species were considered in need of protection from commercial interests, however, due to potential population reductions without adequate regulatory measures and because of the lack of specific data on the species' numbers.

To insure adequate protection of the three kangaroos, the Service imposed through special rules within the final listing rule (F.R. 12/30/74) a ban on the importation of the species' products and parts, stating that:

Upon receiving from the Australian Government a certificate that (1) a particular Australian State has developed an effective sustained-yield program for such wildlife and (2) the taking of such wildlife in that State will not be detrimental to the survival of the species or subspecies of which such wildlife is a part, the Director may . . . permit by publication in the *Federal Register* the commercial importation of any such wildlife originating from the State. . . ." Prior to this time, the United States was the largest worldwide importer of kangaroo leather.

On May 21, 1979, the Service announced the review (in line with the required "5-year review" stipulated under 1978 Amendments to the Endangered Species Act) of a number of species listed prior to 1975, including the three kangaroos in question. In the process of collecting information subsequent to its notice, the Service also sent Dr. David Anderson of the Service's Utah Wildlife Cooperative Unit to Australia to obtain first-hand data on the status, threats to, and trends of the kangaroo populations in their respective Australian States.

Current Proposal Rationale

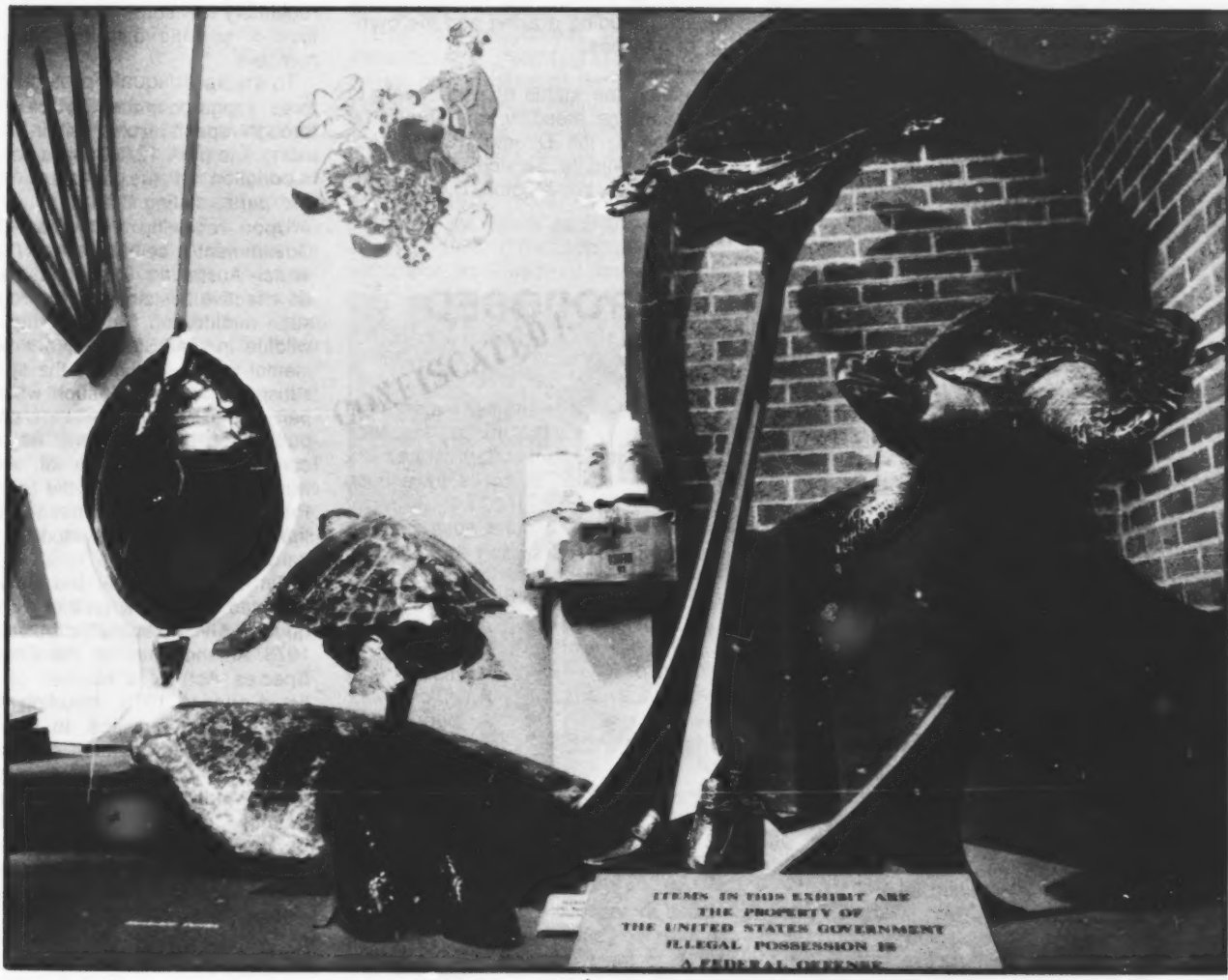
On the basis of aerial surveys and/or extrapolation techniques, estimates of kangaroo populations (all three species) in the Australian States expecting to export hides to the United States are as follows: New South Wales, 5,000,000; Queensland, 25,000,000; South Australia, 1,400,000; and Western Australia, 1,250,000 (for a total of 32 million). Based on population estimates through-

Continued on page 16

Confiscated Wildlife on

The Cleveland Museum of Natural History in cooperation with the U.S. Fish and Wildlife Service has mounted "Confiscated!", an exhibit which dramatizes the worldwide problem of illegal trafficking in endangered species. This exhibit marks the first time that the Federal Government has allowed confiscated materials held in government warehouses to be exhibited by a museum.

Included in the exhibit are mounted specimens of endangered wildlife as well as products made from their skins which entered the United States illegally and were seized by Service agents a ports of entry in New York and Chicago Among the items on display are ivor carvings and jewelry fashioned from the tusks of marine mammals and Eas African elephants, coats and other cloth



The green sea turtle (Chelonia mydas)*, considered one of the world's most commercially valuable reptiles, is prized for its meat, eggs, oil, hide, and shell products which are increasingly sought after in the fashion world.*

Display

ing made from threatened cats such as the jaguar, ocelot, and margay, as well as thousands of dollars worth of shoes, belts, purses, and other accessories made from the skins of endangered lizards, caimans, crocodiles, and sea turtles.

"Confiscated!" also traces the development of laws and international agreements designed to protect endangered wildlife from commercial exploitation.

The exhibit, funded by the Cleveland Foundation, will be on view in Cleveland through October 15, 1980, and will then tour the country with stops in Cincinnati, Denver, New York, Dallas, Philadelphia, and other cities.

Admission to the Cleveland exhibition is free with regular Museum admission. Hours are Monday through Saturday, 10:00 a.m. - 5:00 p.m., and Sunday, 1:00 p.m. - 5:30 p.m.

Photo courtesy of the Cleveland Museum of Natural History

These luxury coats made from the skins of the Endangered margay, ocelot, cheetah, and leopard are just a few of the examples of illegal trafficking in endangered wildlife on display at the Cleveland Museum of Natural History.

READEX FICHE

SERVICE ANNOUNCES POTENTIAL PROPOSALS TO AMEND APPENDICES LISTS

The Office of Scientific Authority—acting through the Service as U.S. Scientific Authority for the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)—has published preliminary proposals in preparation for the submission of formal U.S. proposals to amend the CITES Appendices lists of protected species (F.R. 7/21/80).

Data had been solicited in an earlier notice (F.R. 4/4/80) to guide development of U.S. proposals for consideration at the third meeting of CITES parties to be held in February 1981 in New Delhi, India. The Scientific Authority is now preparing to finalize proposed revisions, which must be submitted to the Convention Secretariat by September 5, 1980.

The July notice contains more than 100 potential revisions, including a number of suggested additions, transfers from one appendix to another (according to the status of the species and the degree of threat by trade), and several proposed deletions from the protective lists. A number of whales, primates, birds, reptiles, and plants have been recommended for additional protection, while certain other species (including the bobcat, lynx, and river otter) have been suggested for removal from Appendix II (although the latter recommendation did not eminate from the Service). Proposed Service decisions are provided in the July notice. (We regret that space limitations preclude our publication of the entire list in this issue, although we will attempt to carry final U.S. proposals in next month's BULLETIN.)

Comments and data on the potential proposals were to be submitted no later than August 20, 1980.

U.S. TO COMMENT ON AUSTRALIAN AND SOUTH AFRICAN PROPOSALS TO AMEND THE APPENDICES

As announced in the July 21, 1980, *Federal Register*, the Office of the Scientific Authority intends to support a proposal by Australia to list the parson finch *(Poephila cincta cincta)* on Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and is seeking comments and data in response to several South African proposals.

The finch was the subject of a previous notice (F.R. 5/16/80) soliciting information on the status of and trade in the species. No comments were received, however, and the Service has since submitted formal notice to the Convention Secretariat of U.S. intent to support the proposed addition, also suggesting that the other subspecies *(P. c. atropygialis)* be included on Appendix II for conirol purposes.

The Republic of South Africa recently submitted proposals to the Secretariat concerning a number of species and subspecies with recommended revisions as follows:

- Bontebok *(Damaliscus dorcas dorcas)*—Transfer from Appendix I to Appendix II.
- Roan antelope *(Hippotragus equinus)*—Add to Appendix II.
- Ruppell's parrot *(Poicephalus rueppelli)*—Add to Appendix II.
- Geometric turtle — Include the scientific name *Psammobates* (=*Testudo) geometricus* in Appendix I in lieu of *Psammobates geometrica* to avoid taxonomic confusion.
- Girdled lizards and crag lizards *(Cordylus* spp. and *Pseudocordylus* spp.)—Add to Appendix II.
- Cape clawed or Gill's clawed toad *(Xenopus gilli)*—Add to Appendix I.
- Elephant's trunk plant *(Pacchypodium namaquanum)*—Transfer from Appendix II to Appendix I.

Comments and data in response to the South African proposals were to be submitted by August 20, 1980. Kindly consult the *Federal Register* for details on the subject proposals.

OSA DEVELOPING PROCEDURAL REGS; PREPARING EXPORT FINDINGS FOR 1980-81

The Service's Office of the Scientific Authority (OSA) has published a notice of intent to propose procedures it will follow in carrying out its responsibilities as U.S. Scientific Authority for the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)—(F.R. 7/10/80).

While the former Endangered Species Scientific Authority (ESSA) had previously published proposed operating procedures for it to follow as U.S. Scientific Authority (F.R. 7/11/79), 1979 amendments to the Endangered Species Act reassigned Scientific Authority responsibilities to the Secretary of the Interior, at the same time establishing a commission to serve in an advisory capacity to the Secretary (see the accompanying article on ICAC). To promote public comment in the process of developing procedural regulations, OSA is now soliciting public input which

may help finalize OSA policies on the following:

(1) Circumstances under which the Scientific Authority would advise that exports of specimens of species included in Appendix I or II are not detrimental to the survival of the species; (2) Circumstances under which the Scientific Authority would advise that imports of specimens of species included in Appendix I are for purposes not detrimental to the survival of the species; (3) Whether findings on export permits should be made with respect to its component subspecies or geographically separate populations, in cases where an entire species is included in Appendix I or II; (4) Whether findings on export permits should be made with respect to impact of trade on the species involved, or with respect to some other species, in those cases where a species was listed to effectively control trade in another species; (5) Formulation of advice on steps to limit export permits so as to insure that the species will be maintained at a level consistent with its role in the ecosystem in which it occurs and well above the level at which it might become eligible for inclusion in Appendix I; and (6) Standards to be used in determining if an importer is suitably equipped to house and care for the living specimens.

Comments on policies and procedures that will aid in effective implementation of the Convention with regard to Scientific Authority responsibilities should be submitted to the Office of Scientific Authority, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240, by August 18, 1980.

Now Formulating Export Findings

The same notice also announced OSA's progress in developing findings regarding the export of the bobcat *(Lynx rufus), (Lynx canadensis),* American Ginseng *(Panax quinquefolius),* Alaskan brown bear *(Ursos arctos),* Alaskan gray wolf *(Canis lupus),* and American alligator *(Alligator mississippiensis)* taken in the 1980-81 season.

Management and harvest reports, populations assessments, and other appropriate data have been requested from the States on these Appendix II species on which OSA will base proposed export findings for the coming taking season (likely to be published in the *Federal Register* in mid-August). Public comment will then be invited on the Service's proposed findings prior to the publication of final export findings in September.

ICAC: GEARING UP FOR ACTIVE U.S. ROLE IN CITES

Created under 1979 amendments to the Endangered Species Act, the International Convention Advisory Commission (ICAC) is nearly fully staffed and preparing to meet its recently mandated responsibilities with respect to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Composed of representatives from the Departments of Interior, Agriculture, Commerce, the National Science Foundation, the Council on Environmental Quality (CEQ), and the Smithsonian Institution, as well as an Interior-appointed member representing the State fish and game agencies (he is Dr. Douglas Crowe of Wyoming), the Commission elected Jane Yarn of CEQ as its chairperson in February. William Y. Brown, formerly of the Endangered Species Scientific Authority (previously functioning as the U.S. Scientific Authority for the Convention), has been selected as ICAC's executive secretary. (See summary of the 1979 Amendments in the January 1980 BULLETIN.)

In signing P.L. 96-159 last December 28, President Carter said, "The scientific integrity of the Convention will be preserved by the Commission's advice on the effects of trade, the listing of species on the Convention appendices, and the interpretation and implementation of the Convention." Charged with making recommendations to the Secretary of the Interior on "all matters pertaining to the responsibilities of the Scientific Authority under the terms of the Convention," the Commission signed a Memorandum of Understanding with Interior Secretary Andrus (acting as the U.S. Scientific Authority) in June 1980 setting forth policies for permit review, for making recommendations on revisions to the appendices lists, and on other matters regarding the implementation of CITES.

ICAC recently issued its work plan for the next fiscal year, setting objectives and "target dates" for discharging its new responsibilities, to include:

- refining procedures for the review of import and export applications.
- development of questionnaires and prototype forms to facilitate the review of permit applications.
- development of standards for determinations required of the Scientific Authority (addressing exports and introductions from the sea, and detriment with regard to Appendix I imports; developing a report on the biology and management of the bobcat, lynx, river otter, and ginseng with recommendations to guide export findings; and recommending suitable housing and care for the most heavily traded species).
- development of a system for evaluating trade in wild animals and plants (with a report soon to be published on 1977 trade).
- development of recommendations concerning appendices lists of protected species.
- development of papers/recommendations preparatory to CITES conferences.
- consultation to improve trade controls, and in other areas of international wildlife conservation.

ICAC meets monthly, with sessions open to the public. (For information on meeting dates phone 202/343-7407.)

Rulemaking Actions

KANGEROOS

Continued from page 11

out the various States, the nationwide kill quota for Australia has been set at 2.8 million kangaroos for 1980. According to data contained in Anderson's report, the Service believes that kangaroo species could sustain themselves at that level of take, barring any new unforeseen human or natural pressures.

Since enactment of the final rule imposing the importation ban, the Australian States have established mechanisms to regulate trade in kangaroo parts and products, involving tagging and recordkeeping that allow the States to trace parts or products throughout the commercial chain. The sustained-yield programs developed in Australia should effectively guard against overexploitation of the red, eastern gray, and western gray kangaroos for commercial purposes, and may actually benefit these species by creating monies for their research and management as well as an incentive to maintain their numbers in areas where they have in the past been treated as vermin.

Unfortunately, the illegal, often indiscriminate killing of kangaroos is almost impossible to prevent because of the task of enforcing protective laws throughout the vast Australian continent. The Service therefore finds that the "Threatened" status is still warranted for the three species, because of continued threats to their existence.

In line with existing plans and available population data, the Service feels it reasonable at this time to propose lifting the ban on importation of kangaroo products for 2 years, when trade and its impacts will be closely monitored to insure that taking for commercial purposes does not pose a threat to the continued survival of the large kangaroos in Australia. Should this proposal be adopted (at which time notice will appear in the *Federal Register*), the importation of kangaroo parts and products tagged or otherwise identified as removed from the wild in accord with the management plans of the approved Australian States will be permitted into the United States for a 2-year period during which time the situation will be reviewed to determine the appropriateness of future importation policies.

(Comments on the subject action were due July 16, 1980.)

BOX SCORE OF SPECIES LISTINGS

Category	Number of Endangered Species			Number of Threatened Species		
	U.S.	Foreign	Total	U.S.	Foreign	Total
Mammals	35	251	286	3	21	24
Birds	67	145	212	3		3
Reptiles	12	55	67	10		10
Amphibians	5	9	14	2		2
Fishes	31	11	42	12		12
Snails	2	1	3	5		5
Clams	23	2	25			
Crustaceans	1		1			
Insects	6		6	3		2
Plants	49		49	7	2	9
Total	231	474	705	45	23	68

Number of species currently proposed: 54 animals
(2 plants)
Number of Critical Habitats listed: 36
Number of Recovery Teams appointed: 68
Number of Recovery Plans approved: 38
Number of Cooperative Agreements signed with States:
36 (fish & wildlife)
6 (plants)

June 30, 1980

CORRECTION

In the June 1980 BULLETIN, credit for the photograph of the Coachella Valley fringe-toed lizard (Uma inornata) was incorrectly given to Wilbur W. Mayhew. Credit should have been given to Philip A. Medica. We regret the error.

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

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ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

Black Rhino Found Endangered

Hunted extensively for its valued horn, the African black rhinoceros *(Diceros bicornis)* has been determined by the Service to be an Endangered species (F.R. 7/14/80). Based on available data, the Service believes there may be fewer than 15,000 black rhinos remaining in the world.

One of five species of rhinoceroses occurring in Africa and Southeast Asia, the black rhino is the most numerous of the world's rhinos and yet appears dangerously threatened with extinction. In Kenya, probable losses over the last five to eight years have been figured at 95 percent of the black rhino population in Tsavo National Park, 85 percent in Amboseli, and over 90 percent of those that once survived in Meru National Park.

These dramatic losses are due primarily to trade in the species' parts and products. East African statistics on the legal export of rhino horn, which are carved into dagger handles or used in powdered form for medicinal purposes or as an aphrodisiac, show that 1.56 tons were exported annually from 1950-1971. From 1972-1976, legal exports jumped to 4.2 tons annually. In one instance, a single rhino horn reportedly sold for approximately $15,000.

The biology of the black rhino may also be contributing to its demise. For a species that exists largely as solitary individuals at a naturally low density, the severe declines cause further problems by reducing the probabilities of reproduction. Also, the rhino is easy to stalk and those animals that are left show evidence of extreme disturbance in response to harassment.

The proposal to list the black rhinoceros (F.R. 10/1/79)—see the November 1979 BULLETIN) drew mainly supportive comments. The only non-supporting comment came from Safari Club International, which recommended Threatened status for the species throughout most of its range except Kenya, where they agree the black rhino is Endangered. According to the Service, the black rhino is in danger of extinction throughout all or a significant portion of its range (the defnition of Endangered under the Endangered Species Act of 1973). Listing this rhino as Endangered in parts of its range and Threatened in others would be inconsistent with the Act's intent.

Although the black rhinoceros is protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (it is on Appendix I), listing under the Endangered Species Act will provide additional prohibitions against importing the species or its parts and products into the U.S., as well as restricting transportation or sale in interstate or foreign commerce. Listing under the Act will also allow the U.S. to provide, if requested, technical expertise for establishing management and recovery programs and funds to assist in the implementation of such programs by appropriate foreign governments.

Photo by C. Kenneth Dodd, Jr.

Kenya's Meru National Park, only two years ago considered a stronghold for the black rhino, is now home to less than 20 specimens.

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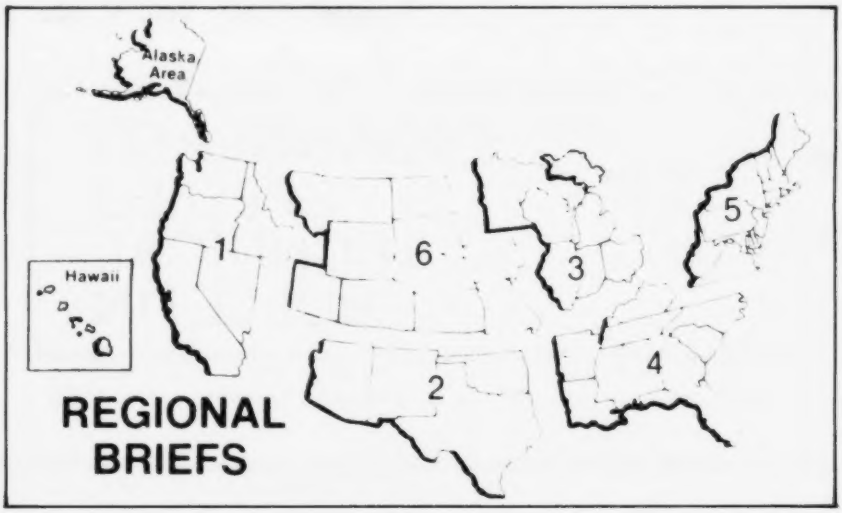

Endangered Species Program regional staffers have reported the following activities for the month of July.

Region 1. A cooperative agreement was signed with the Hawaii Department of Land and Natural Resources, paving the way for purchase of Kaelia Pond on the Island of Maui, and allowing for future resale to the State. The resale would be with the provision that the State showed management capability for the Hawaiian waterbirds occurring at the pond.

The cui-ui *(Chasmistes cujus)* propagation program is proving a success. So far 1.8 million fry have been released in the lower Truckee River in Nevada. An expected 2 million fry will be released by season's end.

The Oregon Native Plant Society and the Service sponsored a Threatened and Endangered Plant Symposium held in Ashland, Oregon. More than 200 attended.

Region 2. Of the 41 pups born to the red wolf *(Canis rufus)* captive breeding program during 1980, 28 survived to 3 months of age, a 68 percent survival rate, the highest the program has achieved to date.

Region 3. The Northern States Bald Eagle Revovery Team met in New York to view the hacking facilities at the Montezuma National Wildlife Refuge, with which they were greatly impressed.

The Kirtland's Warbler Recovery Team met to discuss updating the recovery plan.

Region 4. State and Service personnel began a cooperative effort on July 21, 1980, to capture the four dusky seaside sparrows *(Ammospiza maritima nigrescens)* sighted during an intensive survey conducted earlier this year in Florida. Three have been captured so far, bringing the total number in captivity to five. All six birds are known or presumed to be males. Development of captive breeding and sperm preservation techniques are currently in progress (see our April 1980 Special Report).

A total of 417 snail darter *(Percina tanasi)* juveniles captured last fall in the Tellico Dam project area, and held over winter in the Morristown State Fish Hatchery, were stocked into the Elk River, Giles County, Tennessee. The Elk is the third river to receive a substantial number of snail darters since the transplant program was started in 1975.

Region 5. Service personnel met with State officials, university professors, and representatives of The Nature Conservancy to explore possible protection of segments of the St. Johns River in Maine. Ongoing research on Furbish lousewort *(Pedicularis furbishiae)* populations was reviewed and population inventories conducted with U.S. and New Brunswick (Canada) officials.

Rhode Island has been declared eligible for Endangered Species Cooperative Agreements for plants and for fish and wildlife. They will be the 11th State involved in the program once the agreements are signed.

Region 6. The total population (seven plants) of *Phacelia argillaceae,* an Endangered plant in Utah, was reduced to four plants in May because of trampling by sheep. The remaining population is being fenced for protection.

U.S. Fish and Wildlife Service
Washington, D.C. 20240

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U.S. Fish and Wildlife Regions

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CAPTIVE-BRED ANDEAN CONDORS RELEASED IN PERU

Michael Bender

The first release of Endangered, captive-bred Andean condors *(Vultur gryphus)* into wild habitat has been an apparent success. Shortly after the six young vultures were set free several weeks ago, they joined a small existing population in the coastal mountains of Peru, soaring alongside the older birds and adopting their feeding habits.

This encouraging news follows a 13-year experimental condor breeding project conducted by the U.S. Fish and Wildlife Service's Patuxent Wildlife Research Center near Laurel, Maryland (see the November 1976 BULLETIN). Although the Andean condor is the immediate beneficiary, the ultimate goal is to gain new information for saving its more critically Endangered relative—the California condor *(Gymnogyps californianus).*

The Andean condor program began in late 1966, when nine immature wild birds were captured in the Argentinian highlands and brought to the Patuxent Center. Eventually, after the condors formed four pairs, scientists discovered ways to double, and in some cases even quadruple, normal egg production. The resulting chicks became part of a small, self-sustaining captive population from which the six juveniles were selected for the reintroduction effort.

On July 11, the young condors were flown from Dulles International Airport, Virginia, to Lima, Peru. They were accompanied on their 8-hour flight by Dr. James Carpenter, endangered species research veterinarian at the Patuxent Center. Upon transfer of the birds to the release sight on the Sechura Peninsula, they were placed temporarily in enclosures until they became accustomed to their new surroundings.

Researchers from the Patuxent Center (and its field station in California), the National Audubon Society, the University of Wisconsin, the Bronx Zoo, and the Crandon Park Zoo in Florida, along with Peruvian biologists, are cooperating on the Andean release project. The next phase is to observe the young condors' movements and their interactions with the wild birds. Before their release, the introduced condors were fitted with small solar-powered radio transmitters which will allow researchers to track them through the remote mountains for up to 5 years. Under contract with the Service, Dr. Stanley Temple and Michael Wallace of the University of Wisconsin are directing the release and monitoring activities.

The six young condors now in Peru range in age from one to three years. Another group of five nestlings—one from Patuxent and four from the Bronx Zoo—will be released later this year. Through the use of different age groups, scientists hope to learn the most successful procedures for reintroducing captive-bred condors to the wild. This information, along with new capture and radio-tracking techniques, may give biologists a better chance to insure survival of both the Andean and the California condor. (For a fuller explanation of the California Condor Recovery Program, see the May 1979 Special Edition of the BULLETIN.)

Photo by Michael Bender

These Andean condors are part of the captive breeding program at the Patuxent Wildlife Research Center, which led to the successful reintroduction in South America.

CRACK DOWN RESULTS IN TWO SEA TURTLE INDICTMENTS

Clare Senecal

Grand juries in Brownsville, Texas, and Miami, Florida, recently returned indictments on a number of seafood firms and associated individuals for illegal trade in Endangered Pacific (olive) Ridley *(Lepidochelys olivacea)* sea turtles. The indictments follow year long and 18 month investigations, respectively, by government wildlife and customs agents.

A 12-count indictment was handed down on July 22, 1980, in Brownsville on two seafood firms and their owners for illegally importing and receiving over eight tons of endangered sea turtle meat. Service officials estimate that about 1,300 individuals had to be slaughtered to obtain the eight tons of filet tips, and chunks of turtle meat imported by the Texas and Pennsylvania firms.

Two of the individuals were charged with illegally receiving, concealing, and selling the protected meat which they knew had been imported into the United States in violation of the Endangered Species Act of 1973. One of them was also charged with importing meat fraudulently labeled as fish filets.

The Miami indictment, handed down on August 7, 1980, involves four men and six corporations for illegally importing 45 tons of meat from the Endangered Pacific Ridley into this country, and is the largest case in the Nation's history involving the smuggling of sea turtle products. A 13-count indictment charges the defendants with conspiracy, transporting sea turtle meat with fraudulent documents, or importing turtle meat in violation of the Act and the Convention on International Trade in Endangered Species (CITES). Service officials estimate that about 7,500 individuals from Mexico had to be slaughtered to obtain the 89,572 pounds of meat tips, chunks, and filets that were illegally imported into Miami International Airport between January 1978 and June 1979.

In the Miami indictments, two Mexican nationals and three Mexican companies were named.

All but one of these individuals and companies were involved in a conspiracy, the indictment charges. According to it, the defendants agreed to use the term "chunked turtle meat—*Dermatemys mawii*" on the various customs entry documents accompanying the shipments. *Dermatemys mawii* is a Mexican fresh-water species of turtle whose importation into the States at present is legal.

Both the Brownsville and Miami cases are part of a larger Federal crackdown by five agencies aimed at curbing the booming illegal trade in endangered species products in the United States. The participating agencies are Interior's Fish and Wildlife Service, National Marine Fisheries Service in the Department of Commerce, U.S. Customs Service in the Department of Treasury, the Animal and Plant Health Inspection Service in the Department of Agriculture, and the Department of Justice.

It is a violation of the Act to import any type of sea turtle products, including meat, into the United States. This country banned all imports of sea turtle products in 1978. The breeding colonies of the Ridley turtle on the Pacific coast of Mexico and the Gulf of California were listed as Endangered in 1978. Elsewhere, the species is listed as Threatened.

The adult Pacific Ridley weighs an average of 85 pounds and yields about 12 pounds of meat per animal. The meat, oil, and eggs of this species are in high demand, the prized meat going into the restaurant market and the eggs used in cooking and eaten as an aphrodisiac. In addition, the hides of the Ridley can be tanned and fashioned into shoes, handbags, and belts.

Collectively, the four species of sea turtle most heavily exploited for illegal trade (green, hawksbill, Atlantic Ridley, and Pacific Ridley) represent the most profitable wild animal on the international market today. Raw tortoise-shell, for example, now exceeds the prices paid for elephant ivory. Over 50 percent of a sea turtle—meat, shell, skin, and oil—is marketable in some form.

Criminal violations of the Act carry a maximum fine of $20,000 and a jail sentence of up to 1 year. Criminal violations of customs law carry a maximum fine of $10,000 and a jail sentence of up to 5 years.

SERVICE PROPOSES CHANGES TO

The Service has issued a proposal which would allow nationwide sale of American alligator *(Alligator mississippiensis)* meat and parts, except hides (F.R. 8/8/80). The proposal would revise the special rule on the American alligator which now requires buyers, tanners, and fabricators who handle American alligator hides to obtain a permit. The States of Louisiana and Florida have requested that the Service eliminate the need for fabricators to obtain a permit, if possible.

In the process of becoming manufactured products, American alligator hides, as well as the hides of other crocodilians, are funneled through a limited number of tanners worldwide who are capable of fully tanning marketable hides. At the end of this bottleneck numerous fabricators await who are capable of manufacturing marketable products from the hides. Eliminating the permit requirement for fabricators would enable the Service to concentrate its enforcement efforts where they are likely to be most effective—at the point where the alligator hides are tanned. The Service would closely regulate the activities of buyers and tanners so that only lawfully-taken hides are tanned.

The Service has also been requested by the State of Louisiana to allow nationwide sale of meat and parts, other than hides, from lawfully-taken American alligators. Under the proposal, American alligator meat and parts, other than hides, may be sold or otherwise transferred anywhere in the United States, if the items are sold in accordance with the laws and regulations of both the State in which the taking occurs, and the State in which the sale occurs.

Although the Service has not required any particular form of State control over the sale of meat and parts from lawfully-taken American alligators, the Service continues to oppose unregulated sale. The following conditions may be imposed: (1) persons buying or reselling meat or parts must have a State license or permit, (2) current records of transactions must be maintained, (3) State officials, upon notice

DALLAS - FT. WORTH PROPOSED AS DESIGNATED PORT

Dallas-Ft. Worth, Texas, was proposed (F.R. 7/14/80) to become the ninth Federally designated port-of-entry for wildlife and wildlife products. Conferring port status on Dallas-Ft. Worth would allow the importation and exportation of fish and wildlife and related products through the world's seventh largest airport, serving both the metropolitan area and the south-central and southwestern United States. Currently designated ports-of-entry are New York City, Los Angeles, Chicago, Miami, San Francisco, New Orleans, Seattle, and Honolulu. Under Federal law, most wildlife products must be routed through one of these ports for inspection by the Fish and Wildlife Service.

ALLIGATOR RULES

and subject to applicable limitations of law, must have an opportunity to examine inventory of meat or parts and records, and to copy records, and (4) meat sold in interstate commerce must be prepackaged and bear an identifying insignia or notation.

Public comments on this proposed rule were due by September 8, 1980.

FLORIDA UNDERTAKES THREATENED BUTTERFLY STUDY

submitted by Gerold Morrison, Florida Game & Fresh Water Fish Commission

The Florida Game and Fresh Water Fish Commission has begun a one-year study of its two Threatened butterflies, the Bahaman (*Papilio andraemon bonhotei* Sharpe) and Schaus (*P. aristodemus ponceanus* Schaus) swallowtails, with funding assistance from the Fish and Wildlife Service. The study was initiated on April 1, 1980, and will culminate in the preparation of a Recovery Plan for the two species.

Ongoing habitat destruction, coupled with severely restricted geographic ranges and possibly intense collecting pressure, motivated the listing of these butterflies as Threatened under the Endangered Species Act in April 1976.

Schaus Swallowtail

P. aristodemus ponceanus presently occurs in portions of the upper Florida Keys. Its former range extended south to the middle (and perhaps lower) Keys and as far north as the Miami area. Other subspecies of *P. aristodemus* occur on Cuba, Hispaniola, and the Bahamas. Although data concerning fluctuations in population size and geographic range are not available, habitat destruction appears to be a major factor in the current range contraction.

This swallowtail is a forest insect, known only from upland "tropical hardwood hammocks" in which its host plants (*Amyris elemifera* and *Zanthoxylum fagara* [*Rutaceae*]) occur. Selective logging and farming, followed by intensive commercial development, have severely disrupted the native hammocks in many areas of the Keys. Recent sightings of the butterfly have been restricted to the islands within Biscayne National Monument and portions of northern Key Largo, where habitat disruption has been less severe. However, a new freshwater pipeline planned for northern Key Largo may allow more intensive development to occur there, posing a threat to both the forest and the butterfly.

Anecdotal accounts in the literature suggest the *P. aristodemus ponceanus* population sizes can fluctuate a great deal from year to year. Relatively high densities within certain portions of its range were reported during 1969-1972. In general, however, the butterfly appears to have been rare throughout its range during much of the present century. Unusually low densities were reported during 1973-1975, and the present study indicates similarly low densities during the 1980 reproductive period. However, low numbers during 1980 cannot be attributed to habitat disturbance or to absence of the proper host plants, as they occur in areas which have not been recently disturbed and in which host plant abundances are high. The first quantitative data on egg and larval densities are being accumulated as part of the study, along with information concerning the sources and intensity of mortality during the immature stages. It is hoped that this information will serve as a baseline for future investigations of *P. aristodemus ponceanus* population dynamics. More detailed data concerning the butterfly's basic habitat requirements are also being sought.

Bahaman Swallowtail

Unlike the Schaus swallowtail, the Bahaman Swallowtail, *P. andraemon bonhotei* is not thought to have maintained breeding populations in North America during the present century. Rather, the butterfly has traditionally been considered an accidental visitor. Sporadic sightings in Florida have been dismissed as representing dispersing individuals or temporary unsuccessful colonization attempts.

P. andraemon is an Antillean species, with separate subspecies known from Cuba, Grand Cayman, and the Bahamas. A Cuban subspecies colonized Jamaica during the 1940's and is reported to be an occasional pest of citrus there. *P. andraemon bonhotei* occurs on several islands in the Bahamas, where the larvae feed on *Citrus* spp. and other members of the Rutaceae.

The inclusion of this butterfly on the Federal list of Endangered and Threatened species has been criticized by some lepidopterists, on the grounds that the status of the insect within the U.S. has not yet been adequately determined. Two unworn individuals collected near Miami during the 1940's have been cited as evidence of successful reproduction within Florida, as has a reported sighting of large numbers of adults within Biscayne National Monument in 1972. On the other hand, adults have been collected infrequently in Florida, leading several authorities to suggest that only temporary breeding populations become established following periodic colonization from the Bahamas. The butterfly has not been sighted in Biscayne National Monument in recent years, and conclusive evidence of a breeding population has not been obtained. Such evidence is now being sought, although no individuals of this species have yet been sighted during the study.

DEVIL'S HOLE PUPFISH RECOVERY APPROVED

The Devil's Hole pupfish *(Cyprinodon diabolis)*, which occurs naturally only in Devil's Hole, a deep, water-filled, limestone cavern in Ash Meadows, Nye County, Nevada, stands to benefit from a Service-approved recovery plan. Because of its restricted habitat, the Devil's Hole pupfish was declared an Endangered species (F.R. 3/11/67).

The spring pool of Devil's Hole is located approximately 15 meters below the land surface where a shallow rock shelf approximately 2 by 4 meters is located. Just beyond the shelf, the spring descends to an unknown depth (more than 80 meters) into a myriad of chasms, mostly unexplored. Most of the pupfish reproductive and feeding activity takes place on the shallow shelf.

Population numbers of this pupfish fluctuate between the summer and winter months because of the amount of sunlight which penetrates their cavern habitat. Population numbers are higher during the summer when approximately 4 hours of sunlight penetrates the cavern daily. In winter, no direct sunlight reaches the water surface.

A transplanted population of *Cyprinodon diabolis* was established in 1972 in the Hoover Dam Refugium, an artificial refuge below Hoover Dam, Clark County, Nevada. This is now a reproducing population with numbers fluctuating from 48 to 69. The transplant population exhibits an overall increase in body size from the original Devil's Hole population.

The major threat to the pupfish is the reduction or complete loss of water needed to maintain its essential habitat. Other potential threats include surface runoff carrying sand, silt, and other habitat degrading elements, vandalism and accidents, and major land use changes in the surrounding area.

The primary objective of the recovery plan is to restore and maintain the Devil's Hole pupfish as a Threatened species in its natural habitat. According to the recovery team, the preservation of Devil's Hole in a natural condition is of the utmost importance in guaranteeing the survival of this species.

The plan recommends on-site patrols of Devil's Hole. Personnel could monitor the condition of the site, and their presence would discourage vandals.

To deal with the immediate threat of agricultural pumping on the water level, the plan calls on government and private interests to develop a plan for the Ash Meadows area based on a carrying capacity that will not adversely affect Devil's Hole.

It is the goal of the recovery effort that Devil's Hole will eventually be restored to its natural water level of 1.4. (Measured in feet, water levels in Devil's Hole are designated by distance below a U.S. Geological Survey datum point installed on the rock wall above maximum water level.) This is not feasible at present, thus an interim level of 2.7 percent has been shown to provide sufficient habitat for the survival of the species.

At Devil's Hole, management should be directed toward maintaining a population which corresponds to natural habitat conditions. Under such conditions, populations are estimated to have been not less than 300 fish during late winter and maximum of not less than 700-900 fish during the late summer and early fall.

According to the plan, the Hoover Dam population can be used for research procedures such as habitat manipulation in the form of changing water temperature, food availability, substrate, and a variety of other factors. The determination of the effects that such manipulations have on the pupfish will aid in the preservation of the species.

Another recommendation by the recovery team is the establishment of new populations of Devil's Hole pupfish. The Amargosa Pupfish Station has been constructed for this purpose. The number of fish to be transplanted will not pose a threat to the native Devil's Hole population.

The recovery plan calls for an educational and public information program to include signs posted at the habitat sites, slide shows, and even displays at public aquaria.

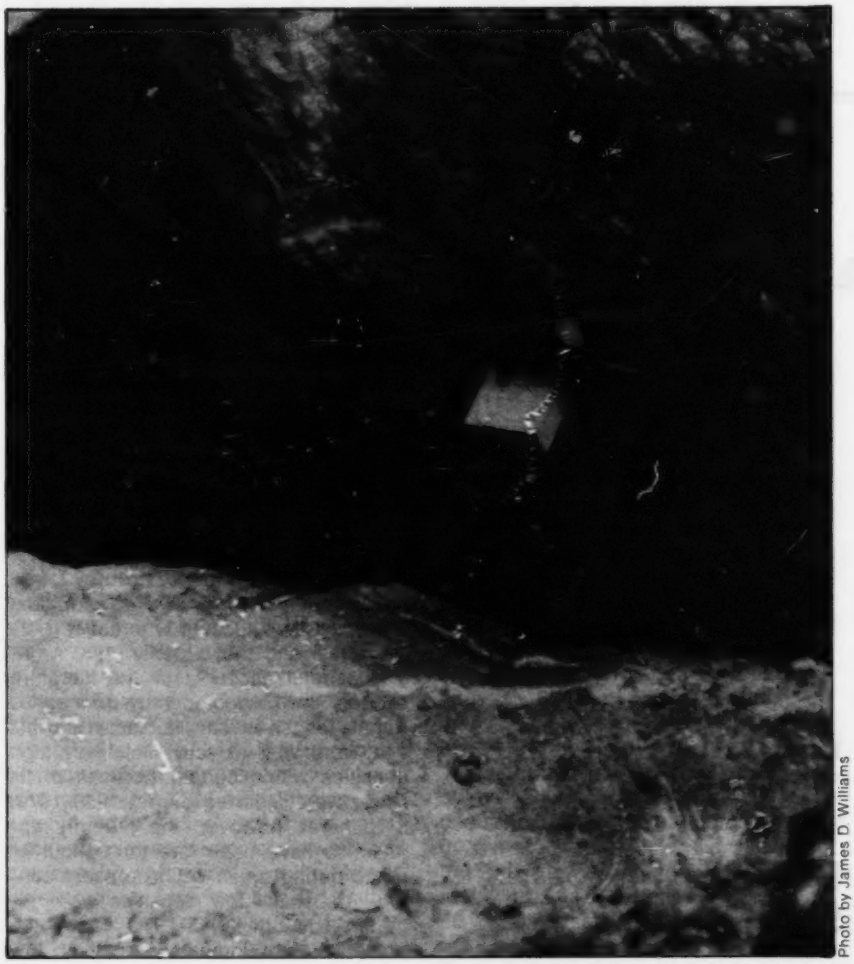

Photo by James D. Williams

The Devil's Hole Pupfish Recovery Plan calls for the protection of this deep cavern, the only site where the species naturally occurs.

THE INCREDIBLE PEREGRINE—ON THE REBOUND?

"The Peregrine falcon is, per haps, the most highly specialized and superlatively well developed flying organism on our planet today, combining in a marvelous degree the highest powers of speed and aerial adroitness with massive, warlike strength. A powerful, wild, majestic, independent bird, living on the choicest of clean, carnal food, plucked fresh from the air or the surface of the waters, rearing its young in the nooks of dangerous mountain cliffs, claiming all the atmosphere as its domain and fearing neither beast that walks nor bird that flies, it is the embodiment of noble rapacity and lonely freedom. It has its legitimate and important place in the great scheme of things, and by its extinction, if that should ever come, the whole world would be impoverished and dulled."

G. H. Thayer, 1904, *Bird Lore*

Photo by Fridrik Fridriksson

Three subspecies of peregrines are found in North America—the Artic peregrine *(Falco peregrinus tundrius)* in Alaska and Canada. Peale's peregrine *(F. p. pealei)* in the Pacific Northwest, and the American peregrine *(F. p. anatum)* in the rest of the continent.

Peregrines have never been numerous in this country. During the 1940's, there were an estimated 500 to 1,000 breeding pairs. By the early 1960's, there were no nesting peregrines left east of the Rockies. Less than 150 pairs were still nesting in the mountainous areas of the west from Washington to New Mexico. Meanwhile, the Arctic peregrine also suffered a serious but less catastrophic decline.

Reduced to precarious lows, the American and Arctic peregrine falcons were listed for protection as "Endangered" species in 1970, when the effort to boost their recovery was begun in earnest.

Dona Finnley

Revered as one of the world's most magnificent birds of prey, the peregrine falcon is a gifted and graceful flier—prized since ancient times for its strength, beauty, and aerial skills as a symbol of avian nobility.

A decade ago, the American peregrine was on the verge of extinction throughout the United States. Since the mid-1960's biologists had failed to identify a single wild individual in the U.S. east of the Rockies. But, this spring, thanks to the devoted efforts of ornithologists, falconers, and conservationists, four young peregrines were hatched in the wild in the East—bringing with them renewed hope for the survival of this unique species in North America.

The successful parents—themselves captive-bred by The Peregrine Fund of Cornell University in a cooperative program with the U.S. Fish and Wildlife Service, State fish and wildlife agencies, and conservation organizations—had been released as part of an intense campaign to restore the depleted peregrine as a nesting bird in the Eastern United States.

Although shooting and habitat loss have taken their toll on the peregrine, the species' dramatic decline in this country was mainly the result of the widespread, indiscriminate use of DDT and other persistent pesticides in the 1950's and 60's.

Biologists are now encouraged that self-sustaining populations of the peregrine may indeed be re-established in the East. "This is the final test, the proof of the pudding," said Dr. Thomas J. Cade, director of The Peregrine Fund, about the newly-hatched young. "This is what we've been waiting to see, proving that our techniques work. The final hurdle was what has just been accomplished—namely, that these captive-bred peregrines can reproduce on their own."

New Jersey Successes

The success this year in New Jersey marks the first time in over 20 years that peregrine falcons have been known to fledge their own young from eyries in the Eastern U.S.

Early in March, six captive-reared peregrines that had paired in 1979 were sighted by State biologists near their release sites in New Jersey's coastal marshes. By the first week in April, two females had apparently laid eggs and were no longer leaving their nests.

Around May 3rd, a lone, long-awaited female emerged from its egg atop a man-made tower on the Service's Brigantine National Wildlife Refuge on the Jersey coast. (The hatchling was the product of a female released just 2 years earlier at Manahawkin, and a male also released in 1978 from Barnegat Bay—a third New Jersey reintroduction site.)

The second triumphant pair produced two male hatchlings and a female sometime around May 7 at Manahawkin, on property owned by the A.T. & T. Long Lines Division (and managed by the Barnegat National Wildlife Refuge). The female parent was released at Barnegat Bay in 1978, while the male adult was apparently released from the same site in 1975.

Both nests were supplemented with an additional female chick in an effort to improve this year's rearing success and promote increased numbers for breeding in future years. All of the fledglings had tested their wings by June and, within another month, had learned to take their own prey.

Through its Division of Fish, Game, and Wildlife, New Jersey was one of the first States to cooperate with Cornell's Peregrine Fund in the restoration of the peregrine by "hacking" them to man-made towers. A technique used for centuries by falconers, *hacking* is the painstakingly delicate process of weaning nestling raptors back to the wild. Whether on specially-erected towers

Continued on page 8

Continued from page 6

or at natural cliff sites, nestlings are placed in a hack box where they are fed unobtrusively by humans until they are about to fledge. The birds are then allowed to wander on their own, gradually learning to fly and hunt for themselves (under watchful human eyes) until they become fully self-sufficient.

With two-thirds Federal matching fund assistance from our Service, New Jersey's recovery program began when the first hacking tower was erected near Barnegat Light in 1975, with a second, third, and fourth tower built in subsequent years. (Including the 6 released in 1980, more than 60 captive-produced young have been hacked from towers on New Jersey's coast in the past 5 years.)

Paul D. "Pete" McLain, who supervises the State's Endangered and Nongame Species Project, says the towers were immediately successful in attracting the adults back to the sites where they were hacked. "We were so very hopeful in 1979, when a pair laid and attempted to incubate three eggs that were later found broken on the Manahawkin tower. But we are now especially gratified by our 1980 success," adds McLain, "largely the result of the combined dedication of our own endangered species biologists and the personnel of The Peregrine Fund."

Eastern Reintroductions and The Fund

From 1975 through 1980, 272 captive-reared peregrine falcons have been released at 20 locations in nine eastern States under the cooperative program between Federal and State agencies, supporting organizations, and The Peregrine Fund.

In 1970, Cornell University launched its pioneering program with the construction of its "hawk barn"—a unique chamber designed to house and propagate peregrines on a large scale. Tom Cade, a long-time falconer and raptor biologist who has directed Cornell's Peregrine Fund since its inception, started the program out of his own devotion to restoring the peregrine to the wild in the East. Cade hired James D. Weaver to head up the propagation effort in 1971. Using various approaches including artificial insemination, Weaver and Cade have raised nearly 400 birds for use in the release program, with their original breeding stock contributed by falconers (or birds that had themselves been bred in captivity since they were nestlings).

As the young birds derive important behavioral traits from association with the parent birds, all Cornell chicks intended for breeding in the wild have been raised by adult falcons, with exposure to humans kept at a minimum. Viewed through one-way glass surrounding Cornell's breeding chambers, mating is generally preceded and followed by an elaborate ritual. Actual copulation is accomplished in about 4 seconds, with the male alighting on the female's back, and should result in a fertile peregrine egg in 18 hours.

The eggs are then placed in one of 10 incubators, where they develop for about 5 weeks before hatching. Housed for up to 3 weeks in aluminum pans, the hatchlings are eventually returned to an adult pair for another week or two. Then they are taken from the barn, and the process of hacking is begun.

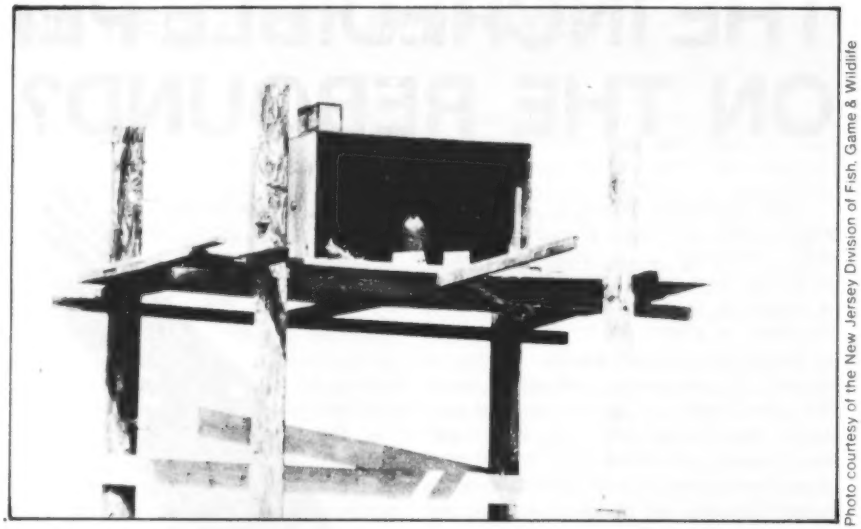

Photo courtesy of the New Jersey Division of Fish, Game & Wildlife

Photo courtesy of The Peregrine Fund

Clustered to the left are three of the first peregrine falcons hatched in the wild in the Eastern U.S. in more than 20 years. (The fourth chick was later added to the brood.) All have since fledged from this hack station in Manahawkin, New Jersey, erected as part of the Cornell/New Jersey reintroduction project—where one of the successful nesting peregrines was released only 2 years ago.

Personnel at the Fund had always considered their reintroduction efforts "experimental" in nature, with the basic objectives of developing release techniques and determining whether or not the hacking process offers a reliable way of re-establishing breeding peregrines. But this year's success should bring the Fund and its supporters closer to their eventual aim of building up an entire self-sustaining peregrine population on the east coast.

Working toward this goal, release sites have been carefully located either in close proximity or along geographic features such as river drainages and coastlines to increase the likelihood that released birds will find one another,

Photo courtesy of The Peregrine Fund

"Scarlett," a Cornell-bred peregrine, with two of the chicks she adopted and raised last year atop Baltimore's tallest building.

pair, and breed. Steven Sherrod, in charge of the Fund's eastern reintroduction program, said the past 3 years' releases have been concentrated in three regions: coastal New Jersey the Chesapeake Bay, and New England. "In effect, we've been trying to saturate each region to build up three population centers," he said. Releases in New Jersey and the Chesapeake Bay have been from artificial sites, while those in New England have been from natural cliffs where records indicate a history of preregrine occupancy.

Four refuges in the Service's 412-unit chain of National Wildlife Refuges are currently hosting release projects: Brigantine and Barnegat in New Jersey, and Chincoteague and Fisherman's Island in Virginia.

City Sites

Not only are man-made towers considered ideal for the hacking of peregrine falcons; tall city buildings are also looked to as promising release sites under the right circumstances.

The nesting of peregrines atop skyscrapers—as their own preferred alternative to cliffs—is not without precedence. The birds have in the past been observed occupants of city buildings in Europe, Asia, Africa, and Australia, as well as in North American cities such as Montreal, New York, and Philadelphia.

In some ways, the city environment is perfectly suited for the raptor—providing an abundance of pigeons, starlings, and other birds on which to feed, as well as protection from hunters. It is also relatively free from nest predators, like the ubiquitous great horned owl so often found at natural eyries.

A city release was sponsored by the Fund and our Service last year in the Nation's capital, when four young peregrines were hacked into the wild from the roof of the Department of the Interior. (Peregrines were known to nest in the Washington, D.C. area along the Potomac River in the mid-1930's.

A second release project in Washington was conducted by The Peregrine Fund this summer from the Smithsonian Institution. Six hatchlings approximately 6 weeks old were placed on one of the "Castle" towers in June, and have since adapted to the "wild" around the Smithsonian mall and Capitol Hill.

Perhaps the best known city dweller of the East, however, is Scarlett—the Cornell-reared peregrine who adopted Baltimore's tallest building as her home after her countryside release 2 years earlier in the U.S. Army's Aberdeen Proving Ground in Maryland. Last year, she was apparently stimulated into breeding behavior by her own reflection in the glass of U.S. Guaranty and Fidelity's 33rd floor, and laid three infertile eggs. Four nestlings were promptly sent by Cornell as substitute's for the eggs, and Scarlett proved a model mother.

This spring, a 2-year old male named Rhett was brought to Baltimore with great hopes that the two would pair and breed. They took to each other right away—the first successful effort to establish a pair bond between a wild and a trained falcon. (Unfortunately, they met too late to mate in 1980, although the pair together raised Cornell-introduced chicks this year.)

Late in July, peregrines were returned to New York City after a 35-year absence. Three "eyases" were placed atop the Manhattan Life Insurance Company building on 57th Street as part of the Cornell program (this time with additional financial support from the World Wildlife Fund-U.S.). Their new home includes a view of Central Park where pigeons abound, and it is hoped that they will one day return to the Big City to breed.

In a fourth cooperative venture—between Cornell, The College of William and Mary (with matching funds from the Service through Virginia's grant-in-aid program), and the Virginia National Bank—six young peregrines were introduced to a hack box on the 7-story Royster Building in Norfolk. Hacking

Continued on page 16

Rulemaking Actions

July 1980

SERVICE DETERMINES STATUS, CRITICAL HABITAT FOR FOUR SAN MARCOS RIVER SPECIES

In a final rule, the Service has listed the San Marcos salamander *(Eurycea nana)* and the San Marcos gambusia *(Gambusia georgei)* as Thretened and Endangered species, respectively, and has determined Critical Habitat for these two species and that of the Texas wild rice *(Zizania texana)* and fountain darter *(Etheostoma fonticola)* (F.R. 7/14/80). These species will receive full protection under the Endangered Species Act of 1973, as amended, with the single exception that the San Marcos salamander has been listed with special rules which allow taking in accordance with Texas State law.

The San Marcos salamander and gambusia were proposed for listing with Critical Habitat on July 14, 1978 (see the August 1978 BULLETIN). On March 6, 1979, the Service withdrew all pending Critical Habitat proposals in compliance with 1978 amendments to the Endangered Species Act. Critical Habitat was reproposed for these two species on March 19, 1980 (and both a public meeting and hearing were subsequently held on the proposal).

The Texas wild rice and fountain darter are both already listed as Endangered (F.R. 4/26/78) and their Critical Habitats were proposed for the first time in the March 19, 1980, notice.

The greatly restricted distribution of these four species, only known from the San Marcos River system in Hays County, Texas, and apparent intolerance of habitat conditions outside the immediate vicinity of this spring system,

Photo by C. Kenneth Dodd, Jr.

Photo by Bob Edwards

The Endangered San Marcos gambusia is found only in a 1-mile stretch of the San Marcos River.

Spring Lake in Hays County, Texas is part of the area determined to be Critical Habitat for the San Marcos salamander, Texas wild rice, and fountain darter.

gives evidence to their vulnerability. Anticipated increased use of groundwater and the probability of contaminants as a result of real estate development activity over aquifer recharge zones constitute serious potential threats to the continued existence of the species. A series of drought years similar to 1956 conditions, coupled with the effects of increasing human impact, could bring about the extirpation of these species from major segments if not all of their currently known ranges.

San Marcos Gambusia

The San Marcos gambusia is found only in a 1-mile stretch of the San Marcos River. The areas inhabited by this fish are open areas away from the stream banks with a minimum of aquatic vegetation over a mud bottom with little current. The habitat is also characterized by thermal constancy. Any actions which would increase vegetation, disrupt the mud bottom, or alter the temperature regime could easily eliminate the species.

Texas Wild Rice

A limited range, apparent inability to reproduce sexually in its native habitat, habitat destruction, and the possibility of hybridization are the major threats to the continued existence of this plant. Texas wild rice is adapted to conditions of clear water, uniform annual flow rate, and constant year-round temperature. The plants do not survive in stagnant water. Any action which would significantly alter the flow or water quality of the San Marcos River, where it occurs, could adversely modify the Critical Habitat. The Critical Habitat for the Texas wild rice includes Spring Lake and the San Marcos River downstream to its confluence with the Blanco River.

San Marcos Salamander

Threatened status is due mainly to a limited range coupled with the threat of lowered water tables affecting Spring Lake, the headwaters of the San Marcos River. The owner of Spring Lake, Aquarena Springs, has taken care to safeguard the animals in the lake and has cooperated with biologists from the Texas Parks and Wildlife Department to ensure that populations can be maintained. However, the lowering of the water tables in the area such that Spring Lake could become dry or intermittent could destroy the species' only habitat. Because of a large population size, take is not seen as a threat to the species, hence the special rule.

Fountain Darter

Populations of this fish species could be reduced or eliminated by the destruction or significant reduction of aquatic vegetation in Spring Lake and the San Marcos River. The preferred habitat of adult and young fountain darters are areas with rooted aquatic vegetation which grows close to the substrate with filamentous algae present. The darter could also be affected by impoundments, excessive withdrawal of water, and pollution. An impoundment on the lower portion of the San Marcos River apparently eliminated the species in that section of the river. The Comal River population of fountain darter was extirpated when its habitat was reduced to isolated pools after excessive removal of water. Critical Habitat includes only the fountain darter's present range in the San Marcos River.

Because each of these species occupies an extremely restricted range, and is, therefore, highly susceptible to changes in habitat, the Service has designated the entire known respective ranges of these species, within the San Marcos River system, as Critical Habitat.

Five Species Proposed as Endangered in U.S.

Because of an inadvertent oversight, individuals of the short-tailed albatross, thick-billed parrot, wood bison, northern swift fox, jaguar, margay, and ocelot which may occur in the United States are not officially listed as Endangered species, although all such individuals occurring in foreign countries are now so listed. The Service is proposing to list five of these species as Endangered in their U.S. ranges to correct the oversight which led to their exclusion from the list. (F.R. 7/25/80)

(These species were listed under the 1969 Endangered Species Conservation Act, which had separate procedures and separate lists for foreign and domestic species. When the 1973 Endangered Species Act repealed the 1969 Act, these species were placed on the 1973 combined list without completing the procedures for listing species which occur in the U.S. It had always been the intention of the Service to list as Endangered all individuals of the above seven species, both foreign and domestic.)

The northern swift fox *(Vulpes velox hebes)* is not being proposed for listing in the U.S. at this time because of uncertainties regarding its taxonomic status and distribution. These uncertainties are being investigated, and a proposal to list the species may be forthcoming when studies are completed. The wood bison *(Bison bison athabascae)* is not being proposed because no pure-bred individuals are known to occur in the U.S. The Yellowstone bison herd, which is basically wood bison in genetic makeup, is known to be mixed with plains bison stock *(B. b. bison)* and thus contains hybrid individuals.

The factors affecting the proposed species are outlined below:

- Short-tailed albatross *(Diomedea albatrus)*—In the late 1800's and early 1900's, plume hunters virtually eliminated the species. Formerly an abundant bird throughout the North Pacific, the total population (which may have numbered over a million in prehistoric times) is now thought to be less than 150 birds. Even when abundant, this bird approached land no closer than two miles except when nesting.
- Thick-billed parrot *(Rhynchopsitta pachyrhyncha*—This parrot nests in the Sierra Madre Occidental of northwestern Mexico and wanders north over the central plateau to the State of Michoacan. Large flights into southern Arizona and probably southwestern New Mexico occurred up to 1919. The parrot appears to be totally dependent on mature highland pine forests for food (pine seeds) and nest sites (abandoned woodpecker holes or natural cavities). Because of cutting of the Mexican forests, the bird has rarely been seen in the last several decades, even in Mexico. The last verified U.S. reports were in the 1930's.

Continued on page 12

Continued from page 11

• Jaguar (*Panthera onca*) There are probably no resident or breeding populations left in the U.S., but occasional stragglers wander into New Mexico, Arizona, and Texas, where they are generally shot as unwanted predators. Jaguars have not been reported in the wild from New Mexico since 1904, from Arizona since 1971, and from Texas since 1948.

• Ocelot (*Felis pardalis*)—The primary distribution of this species is Central and South America. Formerly, the ocelot was known to occur in parts of Arizona and Texas. Today, populations are known to exist only in the Rio Grande area of southeastern Texas, where signs indicate their presence in eastern Cameron County, and scattered portions of Willacy and Kennedy Counties. The Ocelot is threatened by habitat destruction in the form of brush clearing for growing citrus crops, vegetables, and cotton. By 1940, most suitable ocelot habitat in Texas was gone. Predator control operations in Arizona and Texas have also helped extirpate or reduce ocelot populations.

• Margay (*Felis wiedii*)—The margay is known in the United States from a single specimen taken at Eagle Pass, Maverick County, Texas. There are almost certainly no resident populations in the U.S. now, but it is possible that an individual may wander into Texas from Mexico as was probably the case with the U.S. specimen.

All of the above species are known to be Endangered in the areas of their primary distribution and abundance outside of the United States. Because U.S. populations are only peripheral to the main populations of these species, the extreme precariousness of the U.S. populations is emphasized. Critical Habitat is not being proposed for any of these species at this time because such a determination is impossible given the migrating nature of these species.

The Service is soliciting any comments or suggestions concerning any or all of the species in this proposal from the public, other concerned governmental agencies, the scientific community, industry, private interests, or any other interested party. Comments should be sent to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240, and should be received by September 23, 1980.

Photo by S.M. Chambers

Hay's Spring amphipod, which occurs only in a small spring in the Nation's Capital, is proposed as an Endangered species.

Endangered Status Proposed for Hay's Spring Amphipod

The Hay's spring amphipod *(Stygobromus hayi)*, an aquatic crustacean occurring only in a small spring within the National Zoological Park in Washington, D.C., is being proposed by the Service as an Endangered species (F.R. 7/25/80).

Originally proposed for Endangered status on January 12, 1977, and subsequently withdrawn on December 10, 1979, because of 1978 amendments to the Endangered Species Act which substantially modified procedures for listing species, the Hay's spring amphipod is being reproposed based on significant new information. (This species was originally proposed under the common name Hay's spring scud.) Because of the threat of elimination of its only known habitat through pollution, construction activities, and other disruptions, this species is in danger of extinction.

Eyeless and unpigmented, the Hay's spring amphipod is found only in a small spring in the National Zoological Park. The spring emerges from the rocky western wall of Rock Creek Valley and flows about 35 meters into Rock Creek. The portion of the spring inhabited by the amphipod is less than 1 meter wide. The small size of the habitat makes the species extremely vulnerable to construction activities which have already drastically reduced the number of springs in Washington.

If construction activities are not carefully carried out, they could easily result in the elimination of the spring habitat. Such activities have eliminated most of Washington's springs during the last 100 years. A fence now surrounds the spring, but this is not adequate protection from heavy equipment moving even slightly onto the hillside from which the spring flows.

Because the species is so rare, possible collection for scientific or other purposes could pose a threat to the continued existence of the Hay's spring amphipod.

Interested persons or organizations are requested to submit comments to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240. Comments from the public must be received by September 23, 1980.

Service Lists Two Butterflies

Two butterflies, the Palos Verdes blue *(Glaucopsyche lygdamus palosverdesensis)* and Oregon silverspot *(Speyeria zerene hippolyta)*, have been listed by the Service as Endangered and Threatened species, respectively, with Critical Habitat determined (F.R. 7/2/80).

Both species had been proposed for listing in the July 3, 1978, *Federal Register* (see the August 1978 BULLETIN), and on March 26, 1980, Critical Habitat was reproposed for the Oregon silverspot and proposed for the first time for the Palos Verdes blue butterfly (see the April 1980 BULLETIN).

Palos Verdes Blue

Occurring at only three sites on the Palos Verdes Peninsula, Los Angeles County, California, this lycaenid butterfly is threatened by weed control practices that adversely affect its larval foodplant, a locoweed *(Astragalus trichopodus leucopsis)*, and in one location, recreational development. The Palos Verdes blue butterfly was originally known from only one site, where it was extirpated by housing development.

A public meeting and a public hearing were held on the Critical Habitat proposal for this species on April 18 and May 12, 1980, respectively.

Oregon Silverspot

An orange and brown butterfly with silver spots on the underwings, the Oregon silverspot formerly occurred along the coasts of Oregon and Washington, but most of the colonies have been extirpated due to housing and park development. At present, only one healthy colony is known. The butterfly, which belongs to the family Nymphalidae, is threatened with housing development and increased recreational use of the coastal areas to which it is restricted.

This species is found only in the salt spray meadows along the extreme edge of the Pacific Coast. It has been reported from one site in Washington and seven sites in Oregon. The only healthy colony is the one occurring at the Rock Creek-Big Creek site in Lane County, Oregon. This area has been designated as Critical Habitat.

The only apparent Federal involvement affecting the designated Critical Habitat is the Forest Service's management of portions of Siuslaw National Forest. The Forest Service intends to protect the Oregon silverspot butterfly and its habitat.

Both a public meeting and a public hearing were held on the reproposal of Critical Habitat for the Oregon silverspot butterfly on April 15 and April 29, 1980, respectively.

The effective date of the rulemaking listing the Oregon silverspot butterfly as Threatened with Critical Habitat is October 15, 1980.

Key Mud Turtle Proposal Withdrawn

In line with 1978 amendments to the Endangered Species Act, the Service is withdrawing its proposal to list as Endangered with Critical Habitat the Key mud turtle *(Kinosternon bauri bauri)* (F.R. 7/16/80).

Under the amendments, a proposed rule which has not been finalized within two years of its publication in the *Federal Register* must be withdrawn. (The amended Act also authorized a 1-year suspension of all withdrawals until November 10, 1979.) The time limit has expired for listing the Key mud turtle, originally proposed with the Plymouth red-bellied turtle (F.R. 5/19/78—see the June 1978 BULLETIN). This turtle may only be reproposed for listing if it is determined that sufficient new information is available to warrant such a proposal. The Plymouth red-bellied turtle *(Chrysemys rubiventris bangsi)* was listed as Endangered with Critical Habitat on April 2, 1980.

Leopard Comment Period Extended

The proposal to reclassify the leopard would also permit the importation into the United States of legally-taken, sport-hunted trophies under the terms and conditions specified by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). (The leopard is listed on Appendix I of CITES, which means that a valid export permit from the country of origin would be required, and a valid permit must be issued by the U.S. Management Authority for the Convention, before a trophy could be imported. An export permit will not be granted by a nation party to the Convention unless its Scientific Authority finds that such export will not be detrimental to the survival of the species. The U.S. Management Authority will not issue an import permit unless it determines that an export permit has been granted and that the importation is not for primarily commercial purposes, and unless the U.S. Scientific Authority has advised that the importation is for purposes which are not detrimental to the survival of the species.)

All comments and materials must be received no later than November 24, 1980, by the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

KANGAROO COMMENT PERIOD REOPENED

The comment period on the Service's proposal to permit commercial importation of the red *(Megaleia rufa)*, eastern gray *(Macropus giganteus)*, and western gray *(M. fuliginosus)* kangaroos will be reopened between September 16 and October 1, 1980 (F.R. 8/22/80). The Service will also hold a public hearing on this proposal. The public hearing will be held Tuesday, September 16, 1980, at 9:00 a.m. in Room 8068, Main Interior Department Building, 18th and C Streets, N.W., Washington, D.C.

Silver Rice Rat Reviewed

The Service has accepted a petition to list a small mammal, the silver rice rat *(Oryzomys argentatus)*, as either an Endangered or Threatened species (F.R. 7/14/80). Only recently discovered during the winter of 1972-73 on Cudjoe Key, Florida, the silver rice rat is threatened by loss of habitat due to drainage and filling for commercial development, road construction, and mosquito control.

Known from only four specimens (the two collected on Cudjoe Key and two more collected in 1976 and 1980 on nearby Raccoon Key), it is possible that the species occurs on several other islands, but its rarity and secretive nature make it difficult to locate.

The Service is now assembling supporting information to determine if the species warrants a proposal for listing and Critical Habitat determinations.

Service Reviews Key Largo Woodrat, Cotton Mouse

Two small mammals, the Key Largo woodrat *(Neotoma floridana smalli)* and Key Largo cotton mouse *(Peromyscus gossypinus allapaticola)* have been recommended, through a petition to the Service, for addition to the U.S. List of Endangered and Threatened Wildlife. (F.R. 7/28/80).

Both species formerly occurred throughout Key Largo, Florida, in mature tropical hammock-type forest. They are now restricted to an area northeast of where U.S. Highway 1 enters the Key from the mainland. Both species have been artificially introduced on Lignum Vitae Key, a much smaller island southwest of Key Largo.

On Key Largo, destruction of native tropical forest for commercial and residential development has already eliminated the woodrat and cotton mouse from the southern part of the island. Planned construction of a fresh-water pipeline from the mainland through northern Key Largo would contribute to intensive development in the area and the probable loss of the last significant blocks of suitable habitat for both species—and therefore to possible extinction. Even without the pipeline, the habitat is limited to only a few hundred acres, leaving the woodrat and cotton mouse vulnerable to various environmental disruptions. The Service is now assembling supporting information to determine if the Key Largo woodrat and Key Largo cotton mouse warrant a proposal to be listed and have Critical Habitat determined.

Threatened Status Sought for Gypsum Wild Buckwheat

The Service has proposed to list gypsum wild buckwheat *(Eriogonum gypsophilum)* as a Threatened species and to determine its Critical Habitat (F.R. 7/25/80).

A member of the knotweed family, (Polygonaceae), this small, erect, herbaceous perennial, measuring about 8 inches high, is restricted to gypsum soils. The plant's entire range is limited to a 130-acre area in the Seven Rivers Hills of Eddy County, New Mexico, at elevations from 3,290 to 3,450 feet. The area occupied by *Eriogonum gypsophilum* is managed by the Bureau of Land Management (BLM) and the Water and Power Resources Service. The area proposed as Critical Habitat—semi-arid with an average annual precipitation of 14 inches—is on land administered entirely by BLM.

Historically, the species has been known from this one locality for nearly 70 years. Construction of U.S. Highway 285 reduced the eastern portion of the plant's range. Other actions which pose threats to the species are increased grazing, off-road vehicle use, and the proposed Brantley Dam project. According to the Environmental Statement prepared on the project, the dam itself is expected to have only a minor impact on the plant. The lowest elevation at which the plants are estimated to occur is 3,290 feet, 10 feet above the hypothetical project flood level of the dam. If a flood should occur above this level, it should be of very short duration and is predicted to be harmless unless the plants are in flower, in which case reduced seed set would be expected.

It is possible that the stability of the gypsum may be affected near the reservoir, as it has been on the east side of Lake McMillan where slumping of gypsum bluffs has occurred. This could result in several hundred plants out of an estimated population of 2,800 being affected by new patterns of erosion and changes in microhabitat. The Water and Power Resources Service believes that the plants and the dam can co-exist and note that the plant's well-being has been included in the project's planning process. They also point out that the Brantley Dam has been relocated south-southwest of the closest population of this species.

A public meeting on this proposal was held on August 27, 1980. Comments from the public must be received by September 23, 1980, and should be sent to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

Todsens Pennyroyal Proposed As Endangered

Todsens Pennyroyal *(Hedeoma todsenii)*, a native plant of New Mexico, has been proposed by the Service for listing as an Endangered Species with Critical Habitat. (F.R. 7/25/80). A member of the mint family (Lamiaceae), Todsens pennyroyal occurs in only two known populations on steep, gravelly gypsum limestone on the White Sands Missile Range in Sierra County.

First discovered in 1978, Todsens pennyroyal is a perennial herb measuring 4-8 inches in height and is somewhat woody at the base. Its orange-red flowers are solitary along the stem and are about 2 inches long.

The two populations of this plant number about 750 individuals. The reproductive potential, as measured by seed set, is low with an average seed yield of 0.22 seeds per flower.

The remoteness of the two populations and the restricted nature of the White Sands Missile Range provide the species with considerable protection. However, the fragile habitat and small number of individuals leaves the species extremely vulnerable and in need of protection. It is unlikely that the plants would be hit by a missile, but even minor changes in the usage of its protected canyons could potentially threaten the continued existence of the species. Construction activities or increased ground traffic in the Critical Habitat could jeopardize the species' habitat without proper planning for its protection.

Critical Habitat for Todsens pennyroyal includes the entire area in New Mexico where the species is known to occur. This area encompasses 2 square kilometers of the White Sands Missile Range, which is administered by the Department of the Army.

A public meeting was held on this proposed rule on August 26, 1980. Comments are solicited from the public and must be received by September 23, 1980. Address all correspondence to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

PUBLIC MEETINGS/HEARINGS

Due to the often unavoidable short notice in scheduling public meetings and hearings (in compliance with 1978 Amendments to the Endangered Species Act) for certain listing and Critical Habitat proposals, we regret that we cannot always relay adequate notice to our readers. Until further notice, we will attempt to provide available information through this column. Due to space limitations and uncertainty of *Federal Register* publication dates, summaries of pertinent proposed rulemakings may not necessary accompany meeting notices, but may be included in a subsequent issue of the *Bulletin*.

Species/Action	Affected State(s)	Locations of Meetings/Hearings	Date	Time
Maryland darter: Reproposed C.H.	MD	Meeting: Dickson Hall, Building 3074, Raritan Ave., Aberdeen Proving Ground	9/30/80	7:00 p.m.
Kangaroo: Proposed commercial import		Hearing: Room 8068, Main Interior Dept. Bulding, 18th and C Streets, N.W., Washington, D.C.	9/16/80	9:00 a.m.

E—Endangered
T—Threatened
C.H.—Critical Habitat

PERMANENT PROTECTION AREAS PROPOSED FOR MANATEE

The service has proposed the establishment of three permanent protection areas for the Endangered West Indian manatee *(Trichechus manatus)* in Kings Bay, Crystal River, Florida (F.R. 8/12/80). This proposal follows the emergency establishment of a manatee refuge, in the same area, which was effective January 11 through March 31, 1980 (see the January 1980 BULLETIN).

The manatee, a marine mammal, depends upon warm water sources for survival during the winter months when cold water temperatures prevail. The headwaters of the Crystal River in Kings Bay is one of only six natural warm water areas used by the manatee during the winter moniths. Over 100 individual manatees have been known to use this area in recent years. The entire Florida manatee population is estimated at 1,000 animals.

Kings Bay is used extensively for recreational activities such as boating, diving, and swimming. One of the main attractions to this area is the presence of manatees. Although some manatees become accustomed to divers and will actually seek contact with them, most manatees will leave areas associated with human activity.

Under regulations promulgated by the Service (F.R. 10/22/79), manatee protection areas may be established "whenever there is substantial evidence that there is imminent danger of a taking of one or more manatees, and that such action is necessary to prevent such taking." This includes showing that such action is necessary to prevent the harassment of manatees. According to Service personnel, manatees are being harassed to such an extent that their normal use of the warm water areas around the springs at the headwaters of Crystal River is being disrupted. Boating, swimming, and diving (both SCUBA and snorkle diving), may be directly affecting the manatees breeding and calf-rearing activities. Recreational activities also force manatees to use colder waters, subjecting them to cold-related stress and disease.

A description of the three proposed manatee protection areas follows:

(1) Banana Island Sanctuary—This location is critical to the maintenance of a healthy manatee population in Kings Bay. It is immediately adjacent to the main spring and includes a large secondary warm water spring. The area also contains an abundance of preferred manatee food plants. Diving and boating activities are common in this area. The proposed sanctuary will not include areas, such as the main spring, which are essential for the continuation of certain diving activities. When divers, swimmers, and boaters enter the main spring area, the manatees retreat, usually to the proposed sanctuary.

(2) Sunset Shores Sanctuary—Located directly south of the main spring, this sanctuary includes at least three known secondary warm water springs. All but the most tolerant manatees are forced out of the spring area by intensive waterborne activities, depriving them of this warm water refuge. Designation of this area, as well as the Banana Island site, as a manatee sanctuary, prohibiting all waterborne activity during the winter months, is expected to be beneficial to divers and to manatees. More manatees will be able to remain in the vicinity of the main spring near Banana Island, providing more opportunities for divers to see them.

(The two proposed sanctuaries at Banana Island and Sunset Shores will be designated by posting of signs and a floating line of sealed plastic (PVC) pipe sections. Openings will be provided in the Sunset Shores sanctuary to allow the entry of boats for access by residents. Both sanctuaries will provide access for emergency and law enforcement boats.)

(3) Magnolia Springs Sanctuary—This sanctuary is located in a section of canal within the Springs O'Paradise subdivision in Crystal River. A warm water spring, known as Magnolia Spring or the Alligator Hole, is within the proposed sanctuary. Because of the confines of the canal, their is an increased danger of manatees being struck by boats. Private residents will be allowed access to their property by boats, but will be required to maintain idle speed within the sanctuary.

The area adjacent to Warden Key, which was previously designated as an emergency manatee sanctuary, is not being proposed as a permanent sanctuary because of the absence of any warm water springs.

A public meeting was held on this proposal on August 26, 1980. Comments from the public on this proposal must be received by September 12, 1980. They should be submitted to the Area Manager, Area Office, U.S. Fish and Wildlife Service, 15 North Laura Street, Jacksonville, Florida 32202.

Peregrine on the Rebound

Continued from page 9

began on July 16, and the birds have since flown freely and should soon disperse from the area. (Like all other city-hacked chicks, these birds were equipped with miniature radio transmitters to monitor their movements after fledging until they become fully independent.) Biologists also hope that one of the five males in this troop will mate with the lonely female that has wintered the past 3 years atop the 22-story Virginia National Bank, just across from the Royster Building.

East and West: Efforts Continue

Large-scale propagation efforts will have to be maintained at Cornell's hawk barn, according to the experts, if the peregrine falcon is ever to recover to a stable status.

The original eastern population of about 250 pairs is now considered an unlikely goal, even if the required number of birds are hacked to the wild, as much of the habitat once suitable for the peregrine has been altered. The Service-appointed Eastern Peregrine Falcon Recovery Team hopes, however, that perhaps 100 breeding pairs may be restored to the east coast through cooperative Cornell/Federal/State efforts, ultimately requiring the release of more than 1,000 falcons. (Of the number released thus far, about 30 percent are thought to have survived to breeding age.)

While the major focus has been on restoring this species to the eastern part of the country, other efforts have been underway in the western States where some 150 pairs of nesting peregrines still exist (inclusive of the Pacific Coast). A branch of The Peregrine Fund also supported by the Service with sponsorship from the Colorado Department of Natural Resources and other organizations has been set up at Ft. Collins, Colorado, under the management of William A. Burnham. Ornithologists there are concentrating mainly on "stuffing" and "fostering" at active eyries in the hope of bolstering peregrine recovery throughout the Nation.

BOX SCORE OF SPECIES LISTINGS

Starting with this issue, we will use a new format for presenting listing tallies in the Box Score. As below, a new "Species Total" column indicates the actual number of species represented under the other four categories, rather than the total of the columns. A few species are counted, for example, under both Endangered and Threatened categories, and several are counted as both U.S. and Foreign. Under the new Species Total, however, "double listings" are counted only once.

Category	*Endangered*		*Threatened*		* *Species Total*
	U.S.	Foreign	U.S.	Foreign	
Mammals	32	242	3	20	279
Birds	66	158	3	0	213
Reptiles	13	61	10	4	75
Amphibians	5	8	3	0	16
Fishes	33	15	12	0	56
Snails	2	1	5	0	8
Clams	23	2	0	0	25
Crustaceans	1	0	0	0	1
Insects	7	0	4	1	11
Plants	49	2	7	3	58
TOTAL	231	489	47	28	742

Number of species currently proposed: 59 animals
(6 plants)
Number of Critical Habitats listed: 42
Number of Recovery Teams appointed: 68
Number of Recovery Plans approved: 39
Number of Cooperative Agreements signed with States:
36 (fish & wildlife)
6 (plants)

July 31, 1980

NEW PUBLICATION

The U.S. Forest Service has published a pamphlet entitled, *The Red-Cockaded Woodpecker:* Notes on Life History and Management. This colorful publication is available free from the Southeastern Forest Experiment Station, P.O. Box 2570, Asheville, North Carolina 28802.

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

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ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

Beaver Dam Slope Population of the Desert Tortoise Listed as Threatened

Michael Bender

The Service has listed a unique but declining population of the desert tortoise (*Gopherus agassizii*), the Beaver Dam Slope population in Utah, as a Threatened species, and has determined its Critical Habitat (F.R. 8/20/80).

This action was taken because the population continues to decline, primarily as a result of habitat deterioration and overcollection in the past, although these factors reduced numbers to such a point that other threats, such as predation, also may have become significant.

The Beaver Dam Slope population was originally proposed on August 23, 1978, as Endangered, with Critical Habitat, following a petition by Dr. Glenn R. Stewart on behalf of the Desert Tortoise Council. In accordance with the 1978 amendments to the Endangered Species Act, the Critical Habitat portion of the proposal was later withdrawn and reproposed, and a public meeting and hearing were held in St. George, Utah. Because conservation efforts by the Bureau of Land Management could lead to a stabilization of the population, the tortoise was listed as Threatened in the final rule rather than Endangered, but the designated Critical Habitat area was identical to that originally proposed.

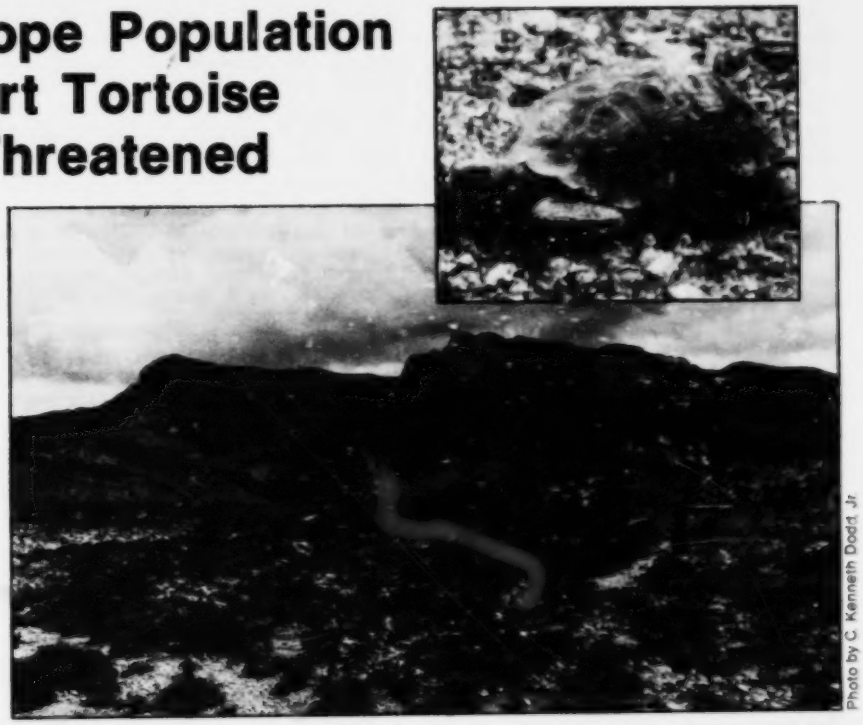

Photo by C. Kenneth Dodd, Jr.

The Bureau of Land Management, which administers this Critical Habitat for the desert tortoise (inset above), has already taken steps to reduce overgrazing.

Background

The desert tortoise occurs in western Arizona, southern California, southern Nevada, southwestern Utah, and adjacent areas in Mexico. The Service believes that the Beaver Dam Slope tortoises, which inhabit southwestern Washington County, Utah, constitute a

Continued on page 4

Wildlife Import/Export Licenses Required

Clare Senecal

Persons engaged in business as an importer or exporter of fish or wildlife and their parts or products, are now required to be licensed by the Service (F.R. 8/25/80). Applications for the $50.00 license must be filed with the Service's Division of Law Enforcement on or before December 31, 1980.

Temporary permission (F.R. 3/5/74) was granted to importers and exporters to continue trade in wildlife until further notice. This permission expires December 31, 1980, unless a person engaged in the wildlife import/export business has filed a complete application, as mentioned above. Any person fil-

Continued on page 3

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REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of August.

Region 1. Because of destruction of its host plant, *Eriogonum nudum* var. *auriculatum*, prior to the acquisition of Antioch Dunes by the Service, the population size of Lange's metalmark butterfly (*Apodemia mormo langei*) was reduced to 200 individuals. The population is not expected to recover for several years; consequently, a captive breeding program is being considered.

A plant thought to be extinct, *Aster vialis*, was rediscovered near Eugene, Oregon. Botanists had been searching for the plant for several years. The newly discovered population has been fenced by members of the Native Plant Society for protection from grazing.

The Hawaiian Forest Birds Survey for 1980 indicates that distribution of the Endangered Poo-uli (*Melamprosops phaeosoma*) is not restricted on Maui as expected. Also, the crested honeycreeper (*Palmeira dolei*) and Maui parrotbill (*Pseudonestor xanthophrys*) are more abundant than previously thought. They are widespread laterally around Mt. Haleakala, but still appear very restricted in their altitudinal distribution on the mountain.

The Oregon Natural Heritage Program has begun mapping localities of the State's threatened and endangered plants.

Region 2. Guidelines have been developed for the veterinary care of captive wolves being raised for reintroduction to the wild.

Five bald eagles (*Haliaeetus leucocephalus*) have fledged along the Salt and Verde Rivers in Arizona. Also in Arizona, 22 peregrine falcons (*Falco peregrinus anatum*) have fledged.

Region 3. The Service met with the Minnesota Department of Natural Resources to discuss the wolf management plan.

Region 4. TVA biologists, with assistance from the Service, surveyed the Hiwassee and Holston River snail darter (*Percina tanasi*) populations. The Hiwassee survey turned up eight young-of-the-year and 50 adults, as compared to three young-of-the-year and 36 adults last year. Although a total population estimate is not yet available, the overall data suggests that the Hiwassee population is at least stable, and probably still slowly expanding. This year marks the fifth successful spawning season in the Hiwassee since the darters were first transplanted in 1975.

In the Holston River (where the darter was transplanted in early 1979), three adult darters were seen.

An undercover operation by the Service's Law Enforcement Division culminated in the August 25 arrest of five Baldwin County, Alabama, residents for unlawful possession and transportation of alligator hides. Agents seized approximately 400 hides worth about $40,000 if sold in the legitimate market. All of the alligators came from southern Alabama.

Region 5. Three more eaglets were provided by Region 3 for New York's bald eagle hacking project at the Montezuma National Wildlife Refuge. Once fledged, these birds will bring the year's total to eight.

Region 6. The Colorado River Fishes Recovery Team met and decided that the Colorado Squawfish Recovery Plan will be rewritten in 1981 to update the pre-

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Alaska Area:** Alaska.

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sent plan.

Alaska Area. Preliminary results from this year's peregrine falcon survey-banding efforts indicate a total of 148 fledglings banded.

The Aleutian Canada goose (*Branta canadensis leucopareia*) release efforts on the Aleutian Islands National Wildlife Refuge resulted in a total of 240 geese released. One hundred geese were released on Agattu Island, 120 year-old propagated geese were released on Amchitka Island, and an additional 20 propagated geese were released on Buldir Island. Of the 100 geese released on Agattu Island, 63 (11 adults and 52 goslings) were wild geese trapped on Buldir Island and transplanted prior to reaching flight stage. The additional geese were three pairs and their broods from the Amchitka propagation stock that were allowed to raise their young, and their broods were augmented with additional young. The adult males of the three pairs are wild geese that have made previous migrations to the California wintering grounds.

Also, nine adult males were captured on Buldir Island and will be shipped to the Northern Prairie Research Center. There they will be added to 32 adult males trapped on the California wintering grounds last year. The males will be paired with breeding age females until a firm bond is established. The pairs will then be released on Agattu Island and/or other release sites as breeding pairs in early spring, or in the summer with their broods.

Import/Export Licenses

Continued from page 1

ing an application after December 31, 1980, may not engage in business as an importer or exporter of fish or wildlife until the license is obtained from the Service.

"Along with existing civil and criminal penalties, the potential loss of a business license will be an added deterrent to would-be violators of wildlife law," said Clark R. Bavin, Chief of the Service's Division of Law Enforcement. "A person whose livelihood depends on this license will think twice before embarking on criminal activities that may lead to its revocation."

The final regulation, which requires the above licensing, will also assist in monitoring the international movement of wildlife, and resultant products. This action was taken to implement Section 9(d) of the Endangered Species Act of 1973 (ESA). The Service expects that the amendment of certain import, export, and transport rules contained in this regulation will improve its ability to protect wildlife and to establish and maintain communications with persons involved in wildlife trade.

Section 9(d) of the ESA makes it unlawful for persons to "engage in business as an importer or exporter of fish or wildlife . . . without first having obtained permission from the Secretary (of the Interior)." This provision will be implemented by the licensing described above and will apply to all wildlife as defined by the Service's regulations and not just to Endangered and Threatened wildlife.

Therefore, in addition to being licensed, persons who import or export species protected by specific laws also must obtain the appropriate Federal and State permits. The licensing system *does not* replace the permit requirements of 50 CFR Part 17 or of any other law or regulation. In effect, the licensing provision represents an overall comprehensive program which monitors, exclusively, the commercial import and export of wildlife and wildlife products.

The comprehensive plan will allow the Service, for the first time, to trace wildlife imports from the supplier to the purchaser or ultimate consignee. Ownership of the wildlife is not a prerequisite to the new licensing requirement and consignees of imported shipments, such as freight forwarders, and taxidermists, are also now required to be licensed.

In addition to being licensed, persons involved in wildlife trade are subject to record keeping, inspection, and reporting requirements. Sanctions are available for noncompliance with these requirements.

Certain persons, generally those already regulated by other governmental agencies, for whom wildlife trade is incidental to their primary business, are exempted from licensing. Also excluded are governmental agencies and nonprofit organizations.

Although licensing is not required for the above mentioned groups, the other requirements, including bookkeeping, remain in effect. Record keeping is to be included as a part of whatever business records are presently maintained, and kept for a period of five years.

Information derived from bookkeeping and records inspection will give the Service early warning signals that a particular species is being excessively exploited. Such a process could also uncover other irregularities.

Inspection and clearance procedures adopted in the August regulations continue the past practice, with slight modifications. This procedure has proved both effective and expedient.

No provision for controlling import/export traffic in plants is included in this rule. The Service recognizes some responsibility for providing such rules but wishes to do so at a later date in conjunction with the Department of Agriculture.

Applicants for licenses, and persons simply wanting additional information regarding the August 1980 import/export wildlife regulations, should contact either the U.S. Fish and Wildlife Service, Division of Law Enforcement, Department of the Interior, Washington, D.C. 20240, (202/343-9242) or the Special Agent-in-Charge for their State. Addresses of agents are listed below.

Alaska:
P.O. Box 42597, Anchorage, Alaska 99509 (907-276-3800).

Hawaii, Idaho, Oregon, Washington:
Lloyd 500 Building, Suite 1490, 500 N.E. Multnomah Street, Portland, Oregon 97232 (503-231-6125).

California and Nevada:
2800 Cottage Way, Room E-1924, Sacramento, California 99825 (916-484-4748).

Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming:
P.O. Box 25486 Denver Federal Center, Denver, Colorado 80225 (303-234-4612).

Arizona, New Mexico, Oklahoma, and Texas:
P.O. Box 329, Albuquerque, New Mexico 87103 (505-766-2091).

Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin:
P.O. Box 45, Twin Cities, Minnesota 55111 (612-725-3530).

Arkansas, Mississippi, and Louisiana:
1010 Gausz Boulevard, Building 936, Slidell, Louisiana 70458 (504-225-6471).

Alabama, Florida, Georgia, and Puerto Rico:
P.O. Box 4839, Atlanta, Georgia 30302 (404-221-5872).

Kentucky, North Carolina, South Carolina, and Tennessee:
P.O. Box CH-66, Nashville, Tennessee 37203 (615-251-5532).

District of Columbia, Delaware, Maryland, Pennsylvania, Virginia, and West Virginia:
95 Aquahart Road, Glen Burnie, Maryland 21061 (301-761-8033).

New Jersey and New York:
Century Bank Building, 2nd Floor, 700 Rockaway Turnpike, Lawrence, New York 11559 (212-995-8613).

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont:
P.O. Box "E", Newton Corner, Massachusetts 02158 (617-965-2298).

SERVICE COMPLETES FIRST PLANT EMERGENCY LISTING

For the first time, the Fish and Wildlife Service has issued an emergency rule providing Endangered Species Act protection for 240 days to a plant, the Osgood Mountains milk-vetch (*Astragalus yoder-williamsii*). Endangered status and Critical Habitat are both provided in this action (F.R. 8/13/80). The authority to expand emergency listing to include plants was one of the 1979 amendments to the Endangered Species Act.

Known from eastern Humboldt County, Nevada, and southeast of Black Butte, Owyhee County, Idaho, *Astragalus yoder-williamsii* is found on exposed ridge crests and flat plateaus of decomposed granite gravel or sandy soil from granodiorite parent material, at elevations of 1,890 to 2,230 meters. The Nevada population, in the northern Osgood Mountains, is estimated at about 500 individuals. The Idaho population numbered less than 10 plants in 1977.

Both populations occur on Bureau of Land Management (BLM) land with the Idaho population also found on privately owned land. Because mining claims were made recently at both sites, and assessment work on the claims in Nevada appears imminent, BLM requested this emergency rule in a letter to the Service Director dated July 1, 1980.

The Nevada population lies within mining claims of a private corporation. The claims lie on deposits of tungsten and gold ore. The ore deposits are immediately to the west and north of this population of the species. (Access to the ores on BLM land is regulated by the Mining Law of 1872.) Considerable mining excavations occur within one mile of the population in all directions, a road passes through the population, and past mining assessment cuts have been made in the species' habitat.

BLM has advised our Service that it intends to set aside the Nevada habitat for the species as an Area of Critical Environmental Concern, under the Federal Land Policy and Management Act of 1976 (P.L. 94-579). The Nevada habitat is also designated as Critical Habitat by our Service.

The Idaho population was discovered in June 1977, but no plants were found in the area this June. Because no plants were found, this area was not designated as Critical Habitat.

Endangered status and Critical Habitat shall remain in effect for 240 days, or until April 15, 1981. During that time, the Service anticipates carrying out normal proposed and final rules for the species, so as to provide it with long term protection.

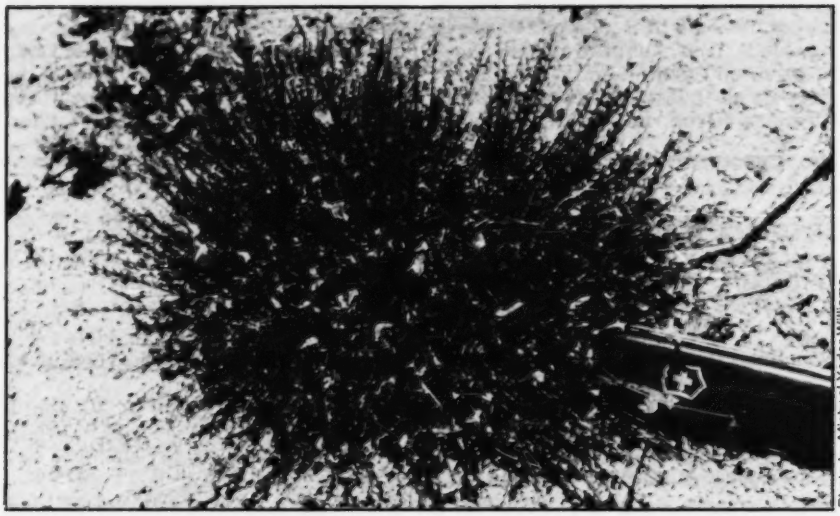

Photo by Michael Yoder-Williams

Astragalus yoder-williamsii *is the first plant to be listed under an emergency rule.*

Desert Tortoise

Continued from page 1

unique population because they live in a transitional area between northern and southern faunas and, at least in part, are separated from tortoises in other parts of the species' range by mountains and other natural barriers. This population is of particular scientific value because it was surveyed by Drs. Angus Woodbury and Ross Hardy from 1936-1946. Some of the 270 tortoises marked during that period are still alive, making them part of one of the oldest marked, continuously studied vertebrate populations in the world.

According to the Desert Tortoise Council's petition to list the tortoise, the Beaver Dam Slope in Utah at one time may have been habitat for 2,000 tortoises; fewer than 350 are thought to remain. One of the main causes of the decline in this particular area has been habitat deterioration. The slope has had a long history of overgrazing by cattle and sheep, although currently only cattle are using the range. Competition for food between tortoises and livestock may be contributing to the reptile's decline, and cattle may occasionally collapse summer burrows and inadvertently step on young tortoises.

Collection of tortoises is thought to have had a severe impact on the population in the past, especially since females reportedly were collected more often than males. A nearby interstate highway now bypasses the Beaver Dam Slope, resulting in fewer visitors to the area and less of a collection problem. In addition, Utah State law prohibits the taking of desert tortoises. Predation by coyotes, kit foxes, and bobcats on eggs and young tortoises is thought by many to be another serious threat. Because the population is so depleted, these factors have become more serious.

Protective Measures

Under the Threatened classification, it is illegal to take desert tortoises from the Beaver Dam Slope (except under permit for approved conservation purposes), and to sell them or their products in interstate or foreign commerce.

The 35 square miles of Critical Habitat designated in Washington County, Utah, is public land administered by the Bureau of Land Management (see the January 1980 BULLETIN for details). A Critical Habitat designation does not create a sanctuary or wilderness area, nor does it represent Federal intent to control purely private land use; rather, it complements the protection already given a species at the time of its listing by requiring Federal agencies to ensure that actions they fund, authorize, or carry out will not likely jeopardize the habitat of the protected species.

In accordance with its responsibility to conserve wildlife, BLM over the years has made adjustments to correct some of the overgrazing problems. In 1965, 50 percent of cattle use was reduced, with another 23 percent proposed (although

this is now in litigation). Future grazing seasons will not extend beyond April 30, which should be helpful to the tortoise, and BLM has proposed the establishment of a 3,040 acre natural study area (also under litigation). By using such management options, it is likely that grazing will not continue to be a major threat to the survival of the tortoise.

Outlook

All States in which desert tortoises occur offer some degree of legal protection. Unfortunately, a rapidly accumulating amount of information indicates that the desert tortoise is continuing to decline throughout much of its known range, not only on the Beaver Dam Slope. In addition to past collection, competition with cattle and sheep, widespread habitat destruction caused by overgrazing, oil, gas, and geothermal leasing, increasing off-road vehicle use on the fragile desert ecosystem may prove to be a serious threat. Accordingly, on August 23, 1978, the Service published a notice of review on the status of the desert tortoise throughout its entire range, requesting comments and information from the involved States, the government of Mexico, and other interested parties. The Service hopes to complete its review this winter, and will then decide if future action under provisions of the Endangered Species Act is warranted.

ILLINOIS MUD TURTLE WITHDRAWN

In compliance with 1978 amendments to the Endangered Species Act, the Service has withdrawn its proposal to list the Illinois mud turtle *(Kinosternon flavescens spooneri)* as Endangered with Critical Habitat (F.R. 8/14/80). The 2-year time limit on proposals established under the amendments has expired for this species, originally proposed in the July 6, 1978, *Federal Register* (see the August 1978 BULLETIN).

The Critical Habitat portion of that proposal was withdrawn on March 6, 1979, because of procedural and substantive changes in making such a determination brought about by the 1978 amendments. Critical Habitat was reproposed on December 7, 1979. During the public comment period on the reproposal, the Service received 131 written comments.

It was clear from these comments that strong differences of opinion existed on whether the Illinois mud turtle was a valid subspecies, whether population estimates were accurate, and whether the species qualified for listing. The Service decided to convene a panel of outside qualified biologists to examine submitted data and advise the Service as to its considered judgement on the above questions, as well as other issues.

According to the panel, *Kinosternon flavescens spooneri* is a valid subspecies, but a small Nebraska population may belong to this subspecies in addition to those known from Illinois, Iowa, and Missouri. The panel said that no reliable overall population estimate was available, nor was it possible to determine a population trend. However, the panel felt that the number and quality of available habitats for the Illinois mud turtle was on the decline, and added that the subspecies needed protection, especially in Illinois. The panel did not say whether Federal, State, or local protection would be most appropriate or effective.

Based upon the panel's report, the Service decided that insufficient information was available to justify listing the Illinois mud turtle as a Threatened or Endangered species. A determination on whether or not to repropose the Illinois mud turtle will be made on the basis of findings from future research.

SERVICE LISTS LEON SPRINGS PUPFISH; DETERMINES CRITICAL HABITAT

The only known wild population of the Leon Springs pupfish (*Cyprinodon bovinus*), located near Fort Stockton, Pecos County, Texas, has been determined by the Service to be an Endangered species with Critical Habitat designated (F.R. 8/15/80).

Discovered in 1851 from Leon Springs, the pupfish disappeared from this locality because of radical modification of the spring. By 1938 the species was thought to be extinct. However, it was rediscovered in 1965 from Diamond Y Spring, approximately 9 miles north of Fort Stockton.

The pupfish is small and varies in body color from dusky gray to iridescent blue. Sexes can be readily distinguished by shape, color, and lateral markings. The species occurs in a highly saline habitat and prefers quiet waters near the edges of shallow pools with a minimal growth of vegetation. Male pupfish guard small territories in shallow waters where the females are attracted by courtship behaviors, spawning takes place, and eggs are deposited. The Diamond Y Spring population of Leon Spring pupfish appears to be in good condition with summer densities reaching more than three fish per square yard in shallow open habitats.

The major threats to this species' survival are pollution from oil spills, diminishing spring flows, and introduced exotic fishes. The present habitat of the pupfish is surrounded by an active oil and gas field. A refinery is located about 500 yards upstream of the main spring head that supplies permanent water to the pupfish habitat. Oil spills have occurred in this area in the past, resulting in considerable fish mortality, however measures have recently been taken to correct this problem.

Groundwater pumping in Pecos County has already dried several springs and has reduced the discharge from Diamond Y and associated springs supporting Leon Creek. Continuation of this activity could destroy the wild Leon Springs pupfish population and its natural habitat.

Hybridization occurred between *Cyprinodon bovinus* and the sheepshead minnow *(Cyprinodon variegatus)* when the latter species was released into Leon Creek in 1974. All exotic sheepshead minnows and hybrids were removed from Diamond Y Spring and Leon Creek by August 1978. However, many areas of the species' habitat are readily accessible and still vulnerable to the release of harmful exotics.

The Service has determined that the entire known range of the Leon Springs pupfish is Critical Habitat. This area includes Diamond Y Spring and a portion of its outflow stream, Leon Creek.

CRITICAL HABITAT PROPOSED FOR MARYLAND DARTER

The Service has proposed to designate two small segments of streams in Harford County, Maryland, as Critical Habitat for the Endangered Marland darter (*Etheostoma sellare*—F.R. 8/28/80).

The Maryland darter is a member of the freshwater perch family. Like many other darters, this fish inhabits rock crevices and similar shelters in clean, well-oxygenated, swiftly flowing parts of streams. They remain on or near the bottom of this riffle habitat, darting quickly from shelter to shelter. Darters feed mostly on small riffle insects and other invertebrates with habitat requirements similar to their own.

Known to occur only in Deer Creek and Gasheys Run, the Maryland darter was first collected in 1912 from a tributary of Swan Creek, near Havre de

Continued on page 6

Continued from page 5

Grace, Maryland. A single juvenile Maryland darter was discovered in 1962 in Gasheys Run, and an apparently self-sustaining population was found in the lower part of Deer Creek in 1965. Repeated collections from the middle and upper stretches of Deer Creek have failed to yield any Maryland darters.

Details on the species' life history have been hard to come by because of its extreme rarity. Biologists speculate that habitat needs limit the species to base level parts of the stream, or perhaps other fish species have a competitive advantage in the upper reaches. Widespread survey collecting elsewhere in the region now indicates it is unlikely that other breeding populations exist.

Activities which could have an adverse impact on the proposed Critical Habitat include water removal and the introduction of chemicals, organic waste matter, or silt. Only activities carried out, authorized, or funded by a Federal agency would be affected by the Critical Habitat designation.

Proposed as Critical Habitat for the Maryland darter are the riffle zones of Deer Creek downstream from its confluence with Elbow Branch, including adjacent pool areas which may be necessary nursery and/or food supply zones. The area in Gasheys Run (also known as Gasheys Creek) includes both forks from their crossing of Penn Central Railroad to the confluence with Swan Creek.

A public meeting was held on this proposal on September 30, 1980 (as announced in the August 1980 BULLETIN). Comments on this proposed rule must be submitted by November 26, 1980, and should be sent to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

McKittrick Pennyroyal Proposed As Threatened

The Service has proposed Threatened status and a determination of Critical Habitat for the McKittrick pennyroyal (*Hedeoma apiculatum* W. S. Stewart), a native plant of Texas and New Mexico (F.R. 8/15/80). Threatened by habitat destruction from park development on Federal lands (i.e., trail building and facilities siting), and by any major change in land use on privately owned land (where one population of the species occurs), *Hedeoma apiculatum* is estimated to number less than 950 individuals.

A member of the mint family (Labiatae), this species is endemic to open limestone rock surfaces and outcrops in canyons and along streamways in the Guadalupe Mountains of Texas and New Mexico, at elevations above 1,600 meters. The plant has no natural protection and is, therefore, extremely vulnerable to disturbance.

Photo by Robert Irving

Hedeoma apiculatum *is subject to disturbance from hikers wandering from trails and climbing over ledges and boulders that support colonies of the species.*

Populations of McKittrick pennyroyal in Guadalupe National Park and adjacent Lincoln National Forest are somewhat protected from habitat destruction or modification. Guadalupe National Park has implemented some protective management strategies for the plant. Also, a congressional committee recommended that the Forest Service and the National Park Service cooperate in preserving the natural resources of the North McKittrick Canyon and other canyons in the Lincoln National Forest. However, most of the localities of this species are accessible by hiking trails. Increased hiking traffic could destroy habitat, and because the plants are easily dislodged, the impact of hikers leaving the trail and climbing over the ledges and boulders that support colonies of *Hedeoma apiculatum* could be devastating. Also, high visibility from the trails could increase the possibility of taking.

Because of the restricted distribution and small population numbers, any human pressure on this species may increase the possibility of small populations becoming extinct through natural population fluctuations. Severe floods have also been shown to reduce populations of McKittrick pennyroyal in streambeds.

Critical Habitat for *Hedeoma apicualtum*, as proposed, includes the areas in Texas where the three largest and best known populations of this species occur. Critical Habitat is not being proposed for the smallest population in Guadalupe Mountains National Park, the population in Lincoln National Forest, or the population on private land because they are not well studied or understood at present.

A public meeting was held on this proposal on August 27, 1980, at Carlsbad, New Mexico.

Comments from the public must be submitted by November 13, 1980, to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

TWO CALIFORNIA BEETLES LISTED AS THREATENED

Two beetles occurring in California have been listed by the Service as Threatened species, with Critical Habitat determined for each (F.R. 8/8/80). The delta green ground beetle *(Elaphrus viridis)* and the valley elderberry longhorn beetle *(Desmocerus californicus dimorphus)* were each proposed for listing in the August 10, 1978, *Federal Register* (see the September 1978 BULLETIN).

Valley Elderberry Longhorn Beetle

In the notice proposing this beetle as a Threatened species, the common name "California elderberry longhorn beetle" was used. Since this name would more appropriately apply to the nominate coastal subspecies, *Desmocerus californicus californicus*, the Service is now using the common name "valley elderberry longhorn beetle."

The valley elderberry longhorn beetle originally occurred in elderberry *(Sambucus* sp.*)* thickets in moist valley oak woodland along the margins of the Sacramento and San Joaquin Rivers in the Central Valley of California. Currently, the beetle is known from less than 10 localities in Merced, Sacramento, and Yolo Counties. Agricultural conversion, levee construction, and stream channelization have taken their toll on the species' habitat. Also, in some State and county parks where populations of the beetle occur, the clearing of undergrowth (including elderberry) and planting of lawns has caused further habitat degradation.

Two areas in Sacramento County have been designated as Critical Habitat for the valley elderberry longhorn beetle. An area in Solano County which was proposed as Critical Habitat (F.R. 5/2/80) was not included in the final rulemaking because of a lack of information on the beetle in that area.

Delta Green Ground Beetle

This beetle is known to occur only at two sites in Solano County.

Metallic green and golden in color, this beetle is a predaceous member of the family Carabidae. It is known to oc-

cur only near two vernal pools south of Dixon, Solano County, California. Agricultural practices in this area threaten the species' survival.

The delta green ground beetle was first collected in 1876 from an unknown locality in California and was not rediscovered until 1974. Vernal pools, which are filled by winter rains and dry out by late summer, were once widespread throughout California, but only a few remain. Many of the vernal pools have been lost to river channelization, dam construction, and agricultural conversion of natural habitats. Elimination of the two vernal pools by agricultural conversion or other causes may cause the beetle's extinction. At one of the pools, plowing and land leveling may have already adversely affected the beetle.

Based on suggestions by the California Department of Fish and Game and the State Water Resources Control Board, the Service included in its final Critical Habitat designation a portion of Olcott Lake outside the proposed Critical Habitat boundaries (F.R. 5/2/80) and the elimination of two areas which appear to be unsuitable as habitat for the beetle.

Photo by D.H. Kavanaugh

The delta green ground beetle is threatened by loss of habitat due to agricultural practices.

STATUS REVIEW OF 18 FOREIGN REPTILES

The Service is reviewing the status of 18 species of foreign reptiles to determine whether they should be proposed for inclusion on the U.S. List of Endangered and Threatened Wildlife (F.R. 8/15/80). These species, listed in the accompanying table, are declining due to various threats including habitat destruction, the introduction of non-native predators, exploitation as a human food source (mainly by local people), and overcollection.

Comments and materials relating to the status of these species should be submitted by November 13, 1980, to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

Common name	Scientific name	Range
Serpent Island gecko	*Cyrtodactylus serpensinsula*	Mauritius
Acklins ground iguana	*Cyclura rileyi nuchalis*	Bahamas
Allen's Cay iguana	*Cyclura cychlura inornata*	Bahamas
Andros Island ground iguana	*Cyclura cychlura cychlura*	Bahamas
Cuban ground iguana	*Cyclura nubila*	Cuba, Cayman Islands
Exuma Island iguana	*Cyclura cychlura figginis*	Bahamas
Jamaican iguana	*Cyclura collei*	Jamaica
Mayaguana iguana	*Cyclura carinata bartschi*	Bahamas
Turks and Caicos iguana	*Cyclura carinata carinata*	Turks and Caicos Islands
Watling Island ground iguana	*Cyclura rileyi rileyi*	Bahamas
White Cay ground iguana	*Cyclura rileyi cristata*	Bahamas
Gray's monitor lizard	*Varanus grayi*	Philippines
Hierro giant lizard	*Gallotia simonyi*	Canary Islands
Aruba island rattlesnake	*Crotalus unicolor*	Aruba Island
Asiatic box turtle	*Cuora trifasciata*	Hong Kong, People's Republic of China
Central American river turtle	*Dermatemys mawei*	Belize, Mexico, Guatemala
Chinese big-headed turtle	*Platysternon megacephalum*	Hong Kong, People's Republic of China
Lar Valley Viper	*Vipera latifii*	Iran

CITES PROTECTION BROADENED FOR CACTI

Because of a legal interpretation, the plant family Cactaceae (cactus) will now receive wider protection under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES—F.R. 8/26/80).

The Departments of the Interior and Agriculture, which are responsible (under provisions of the Endangered Species Act and Convention) for enforcement of activities involving the international movement of nonterrestrial plants and terrestrial plants, respectively, have determined that the term "all species in the Americas" for the family Cactaceae, as found in CITES, means all species that are native to the Americas regardless of where physically located. In the past, this term has been thought to refer to certain plants of the family Cactaceae that are physically located in the Americas. Thus, Convention documentation for import, export, or reexport have not previously been required for cacti unless the plants were moved from a location in the Americas.

According to Department of the Interior botanists, all species of the family Cactaceae (except for certain species of the genus Rhipsalis, which is listed separately on Appendix II) are native to the Americas, although some species have been introduced and established in other parts of the world. Therefore, any plants of the family Cactaceae, including plants previously treated as being excluded from Appendix II, will be required to have appropriate Convention documentation at the time of importation into the United States, or exportation or reexportation from the U.S.

This new policy became effective on September 15, 1980.

OSA ISSUES EXPORT FINDINGS FOR 1979-80

The Service's Office of the Scientific Authority (formerly the Endangered Species Scientific Authority or ESSA) has issued a finding that export of bobcats (*Lynx rufus*) taken from Florida, Massachusetts, and New Mexico, during the 1979-80 season will not be detrimental to the survival of the species (F.R. 9/12/80). Final approval of such exports will not be authorized unless or until a court-ordered injunction is modified or vacated. (The bobcat is listed on Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, for which the Service acts as U.S. Scientific Authority.)

On September 26, 1979, the ESSA published findings favorable to the export of bobcat pelts taken in the 1979-80 season in 35 States and the Navajo Nation. On December 12, 1979, as a result of a suit filed by Defenders of Wildlife, Inc., the U.S. District Court for the District of Columbia issued a Memorandum Opinion and Order which reversed

Continued on page 8

Continued from page 7

ESSA's findings for five of those States and parts of two others, thus enjoining export of bobcat pelts legally taken in those States or areas.

In the suit, Defenders of Wildlife asked that export from all jurisdictions approved by the ESSA be prohibited and that the standards used by the ESSA in making its determinations be declared inadequate. The court found that the information used by the ESSA in making its determinations was sufficient in all but seven States. Export of bobcats taken in 1979-80 was enjoined from Florida, Massachusetts, New Mexico, North Dakota, Wisconsin, and parts of Oregon and Texas. The court did not find that the standards used by the ESSA were inadequate, but that the available information from these seven particular States was inadequate to support the ESSA findings.

Further, the court's decision only prohibits international export of pelts taken in the affected States and does not prohibit hunting, trapping, or commerce in the species within the United States, including the seven affected States.

Three of the affected States, Florida, Massachusetts, and New Mexico, have submitted additional biological and management information to the Service, and have asked for a new finding of no detriment to the species based on this additional information. This finding has as a condition that pelts are clearly identified as to State of origin and season of taking, including tagging according to standards and conditions previously established by the Service.

BOX SCORE OF SPECIES LISTINGS

Category	Endangered U.S.	Endangered Foreign	Threatened U.S.	Threatened Foreign	Species Total
Mammals	32	242	3	20	279
Birds	66	159	3	0	214
Reptiles	13	61	10	4	75
Amphibians	5	8	3	0	16
Fishes	34	15	12	0	57
Snails	2	1	5	0	8
Clams	23	2	0	0	25
Crustaceans	1	0	0	0	1
Insects	7	0	6	1	13
Plants	50	2	7	3	59
TOTAL	233	490	49	28	747

Number of species currently proposed: 55 animals
7 plants
Number of Critical Habitas listed: 46
Number of Recovery Teams appointed: 68
Number of Recovery Plans approved: 39
Number of Cooperative Agreements signed with States:
36 (fish & wildlife)
6 (plants)

August 31, 1980

HOTLINE NEWS

The Southeastern U.S. Marine Mammal and Sea Turtle Stranding Network has established a toll free "hotline" number in Florida (800-432-6404) for reporting cetacean and sea turtle strandings. To report strandings in the continental United States outside of Puerto Rico and the U.S. Virgin Islands, call 305-350-7310 (direct dial, reimbursable). Calls involving sea turtles will be forwarded to the appropriate State coordinator.

The previously established manatee "hotline" (800-342-1821) is still in effect.

Our service, the National Marine Fisheries Service, and the University of Miami are cooperating in this effort.

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

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Coachella Valley Fringe-Toed Lizard Threatened

Michael Bender

The Coachella Valley fringe-toed lizard (*Uma inornata*) has been listed by the Service as a Threatened species, and its Critical Habitat delineated (F.R. 9/25/80).

Background

In September 1978, the Service proposed the Coachella Valley fringe-toed lizard as Threatened with Critical Habitat, based on information from the California Department of Fish and Game, other State officials, and eight professional biologists. Later, to comply with subsequent amendments to the Endangered Species Act, the Critical Habitat portion of the proposal was withdrawn and reproposed after completion of an economic analysis and the addition of new biological information obtained subsequent to the original proposal (see the June 1980 *Technical Bulletin*). A public meeting and hearing were held in Palm Springs, California.

A total of 187 comments were received in response to the original proposal and reproposal of Critical Habitat. Twenty comments were formally presented for the record at the public hearing in Palm Springs. In addition, four petitions were submitted which supported the listing of the Coachella Valley fringe-toed lizard; these petitions contained a total of 105 signatures.

The 4- to 5-inch lizard is found only in the Coachella Valley, Riverside County, California. Named both for its home and the tiny projections on its toes which enable it to run easily over the sand, this small reptile evades predators by "swimming" beneath the loose surface. The presence of wind-blown sand, therefore, is essential to the lizard's survival.

Agricultural and urban development have reduced the lizard's range from about 324 square miles historically to about 120 square miles today, of which 50-99 are considered suitable habitat. Permanent human residents in Coachella Valley, which numbered about 12,000 in 1942, currently exceed 100,000, and are projected to reach up to 164,000 by 1990. (Seasonal residents may add another 40 percent or more to the current total.) At present, however, none of the lizard's habitat has been permanently preserved, and zoning plans indicate that all of its remaining range could eventually be developed.

The habitat is further threatened by an invasion of Russian thistle, an intro-

Continued on page 3

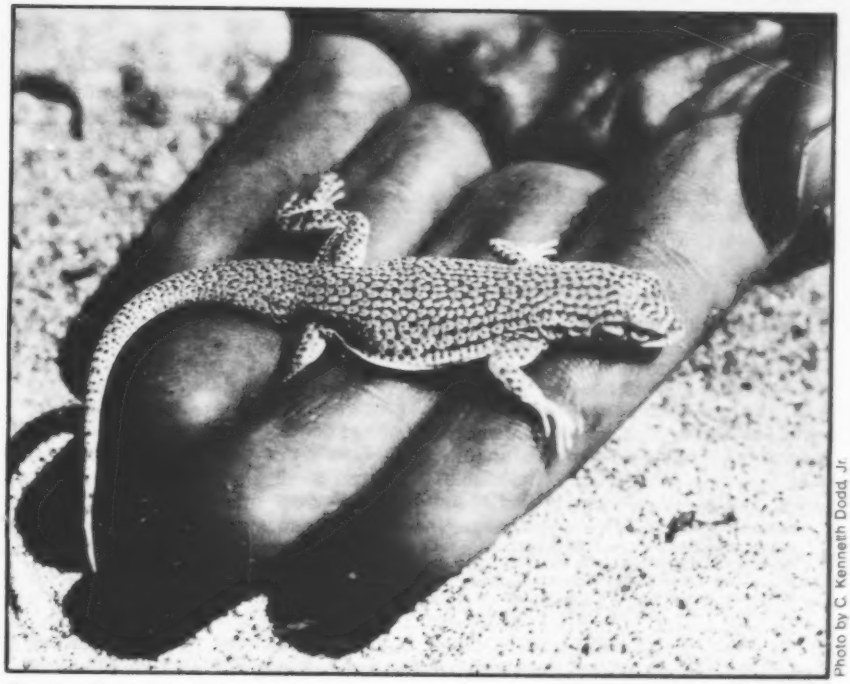

Photo by C. Kenneth Dodd, Jr.

The tiny Coachella Valley fringe-toed lizard has been listed as threatened.

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REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of September.

Region 1. The single known population of *Stephanomeria malheurensis* has been reduced to less than 12 plants according to a field report. The plant occurs south of Burns, Oregon.

In an effort to increase input from the botanical community in the listing process for plants, Technical Review Panels made up of botanists will review the status of plants in Oregon, Nevada, Idaho, and Washington, and provide data to the Regional Office.

Region 2. A draft management plan has been developed for the aquatic habitats of San Bernadino Ranch in southeastern Arizona.

An *ad hoc* razorback sucker (*Xyrauchen texanus*) group met, and will circulate a draft management plan for updating.

Region 3. A meeting of regional Endangered Species Coordinators was held, with all States participating. Priorities were set for fiscal year 1981.

Regional staffers met with the Indiana/Gray Bat Recovery Team to discuss the species' status.

A two-part poster of Fresh-Water Mussels of the Upper Mississippi River, developed in conjunction with the Army Corps of Engineers, is available from the region on a limited basis.

Region 4. Presumed extinct for 23 years, the Smoky madtom (*Noturus baileyi*) was recently rediscovered in Citico Creek in the Cherokee National Forest in Tennessee. The fish was first discovered in nearby Abrams Creek in 1957, during preparations for the impoundment of Chilhowee Reservoir. Filling of the reservoir submerged lower Abrams Creek, destroying any possibility for survival of the species within the original area of collection. The Service will attempt to gain additional information on the status of the newly discovered population.

The Service has issued a contract for providing information on the feeding habits and movements of the Hobe Sound-Riviera Beach manatee (*Trichechus manatus*) population. Data is specifically being sought on the location and value of grassbeds as feeding areas and methods for their conservation.

Region 5. Rhode Island has signed Cooperative Agreements with our Service for conservation of Endangered fish and wildlife, and plants. The State may now receive two-thirds matching funds from our Service.

Region 6. A Cooperative Agreement for plants was signed by the Colorado Department of Natural Resources and the Service.

U.S. Fish and Wildlife Service
Washington, D.C. 20240

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Alaska Area:** Alaska.

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CORRECTION

Credit for the photograph of the California condor chick on page 3 of the July 1980 BULLETIN should have been given to Tupper Ansel Blake. We regret the error.

Fringe-Toed Lizard

Continued from page 1

duced shrub that is spreading throughout the West, and by stands of Tamarisk trees planted as windbreaks. Both plants are stabilizing sand deposits. Increasing use of off-road vehicles is yet another danger to the fragile desert ecosystem.

Protective Measures

Under the threatened classification, it is illegal to take Coachella Valley fringe-toed lizards (except under permit for approved conservation purposes), and to sell them in interstate or foreign commerce. The lizard is also protected under California's endangered species legislation.

About 12,000 acres (18.5 square miles), which include both the areas of highest lizard concentration and a source of blow sand, have been designated Critical Habitat. Such a determination does not create a sanctuary or wilderness area, nor does it represent Federal intent to control purely private land use; rather, it complements the protection already given a species at the time of its listing by requiring Federal agencies to ensure that actions they fund, authorize, or carry out will not likely jeopardize the habitat of the protected species.

A Critical Habitat designation will not necessarily block flood and blow sand control, a major concern of Valley residents. Close consulation between project sponsoring agencies and the Service often averts conflicts through mitigation or design modifications. The Service will cooperate with other Federal agencies to minimize any impacts on local residents, and to maintain the lizard as a viable part of the fauna of the Coachella Valley.

Although almost none of the Critical Habitat is currently under Federal protection, the Bureau of Land Management is negotiating with several landowners in the area for possible land exchanges. One corporation alone, Dart Industries, is expected to exchange approximately 20,000 acres in the Coachella Valley, including 5,000 acres of Critical Habitat. In addition, listing the lizard as a Threatened species makes it possible for the Service to negotiate for land acquisition with money from the Land and Water Conservation Fund as part of a multi-faceted recovery plan to be prepared on behalf of the lizard. This property could then be preserved from future development, and managed instead for the lizard's needs.

ENDANGERED HUMPBACK CHUB RANGE EXTENSION DOCUMENTED

In late August, Colorado Division of Wildlife and U.S. Fish and Wildlife Service biologists collected a single humpback chub (*Gila cypha*) in the Yampa River in northwest Colorado. Until now, the species was known to be present in Colorado only in the mainstream of the Colorado River a short distance east of the State line. It had apparently disappeared from the Yampa and Green Rivers following the closure of Flaming Gorge Dam in 1962.

The specimen was collected in a gill net in an isolated area known as Cross Mountain Canyon, a short distance upstream from Dinosaur National Monument. The specimen, which was released in good condition, measured approximately 10½ inches (267 mm) and was probably between 4 and 5 years old. [Captured in the same net was an Endangered Colorado squawfish (*Ptychocheilus lucius*).]

The presence of the Endangered humpback chub in Cross Mountain Canyon was suggested two years ago from a fisherman's report. Habitat conditions in the area have been found to be similar in nature to the other few remaining areas where this rare fish is still present. This capture suggests the possibility that Cross Mountain Canyon, a largely unmodified section of the Yampa River, may serve as a natural refuge for this declining species.

The Colorado Division of Wildlife will begin intensive efforts to determine the size and natural history of any potential humpback chub population in this area.

This humpback chub is the first specimen found in the Yampa River since the closing of Flaming Gorge Dam in 1962. Photo by Charles Haynes

NMFS Establishes Sea Turtle Resuscitation Procedures

The National Marine Fisheries Service (NMFS) has established emergency regulations to modify procedures for resuscitating threatened sea turtles (F.R. 10/7/80). These regulations will remain in effect for 240 days from the date of publication in the *Federal Register*, unless they are extended through normal rulemaking procedures before the 240-day period is over.

Under procedures established in 1979 in 50 CFR 227.72 (e) (1) (i), the resuscitation technique for a comatose turtle incidentally caught in commercial fishing operations was to turn it on its back and pump the breastplate by hand or foot. The emergency regulations allow for an alternate resuscitation technique, relocation of turtles to non-shrimping areas, and a method of releasing turtles from vessels.

According to NMFS, the emergency regulations are necessary to mitigate sea turtle losses which occur when the turtles are caught in shrimp trawls. This past summer, approximately 1,850 sea turtle carcasses were reportedly

Continued on page 4

NMFS Establishes Sea Turtle Resuscitation Procedures

Continued from page 3

washed ashore on southeast U.S. beaches. These incidents prompted a meeting of conservationists, shrimp industry representatives, and State and NMFS officials in Charleston, South Carolina, on September 18, 1980. The group agreed that the procedures for resuscitating sea turtles caught in trawls needed to be broadened.

Specifically, the emergency regulations state that specimens caught in trawls must be handled with due care to prevent injury to live specimens, observed briefly for activity, and returned to the water according to these procedures:

(1) Sea turtles that are unquestionably dead or actively moving must be released over the stern of the boat. They must be released only when trawls are not in use, when the engine gears are in neutral, and in areas where they are unlikely to be recaptured or injured by vessels.

(2) For sea turtles that are comatose or inactive but not unquestionably dead, resuscitation must be attempted by either (a) placing the turtle on its back (carapace) and pumping its breastplate (plastron) with hand or foot, or (b) placing the turtle on its breastplate and elevating its hindquarter several inches for a period of 1 to 24 hours. The amount of elevation depends on the size of the turtle; greater elevations are needed for larger turtles.

Sea turtles being resuscitated must be kept wet or moist. If they revive and become active, the turtles must be returned to the water in the manner described above. Similarly, if they fail to move within several hours (up to 24 if possible) they must be released in the same way.

Written comments on the desirability of extending or modifying these regulations must be received on or before December 8, 1980. They should be sent to the Regional Director, National Marine Fisheries Service, 9450 Koger Boulevard, St. Petersburg, Florida 33702.

Rulemaking Actions

September 1980

ROBBINS' CINQUEFOIL ENDANGERED

Robbins' cinquefoil (*Potentilla robbinsiana*), a plant occurring in New Hampshire only on land administered by the U.S. Forest Service, has been listed by the Fish and Wildlife Service as Endangered with Critical Habitat (F.R. 9/17/80).

A member of the rose family (Rosaceae), *Potentilla robbinsiana* historically occurred in alpine areas of New Hampshire and Vermont. Survival of the plant and its habitat are being threatened by trampling and natural factors.

Robbins' cinquefoil was part of a proposed rule (F.R. 6/16/76) which was subsequently withdrawn (F.R. 12/10/79) in accordance with 1978 amendments to the Endangered Species Act. The plant was reproposed, with Critical Habitat included for the first time, on March 24, 1980.

Historically, this species has been known from two locales in the White Mountains of New Hampshire, and one locale in Vermont. Currently, the species is known from only one locale in New Hampshire, where it has been severely impacted by man.

Located along the Appalachian Trail in the Presidential Range of the White Mountains, the area now occupied by Robbin's cinquefoil is about one-fourth the territory occupied by this species in 1934. Expansion of the trail for a bridle path and widening of the hiker travel zone at this site have greatly reduced the population. The plant was found on either side of the trail as recently as 1965, but by 1972 it was totally absent from the west side. Along the east side, most plants within 8 meters of the trail have been destroyed.

The other New Hampshire location where the plant was once known to occur was on the Franconia Ridge of the White Mountains. The two populations that occurred there are now thought to have been extirpated.

The major cause for the decline at both New Hampshire locations has been hiker traffic. The nearly barren, fell-field habitat of Robbins' cinquefoil offers no obstacle to hikers wandering off the trail, to groups walking abreast, or to illegal campers. Hiking causes shifting and dislodging of the stony, pavement-like surface. Once this surface is disturbed, the loosened soil is blown or washed away. These fragile alpine habitats and plant communities take many years to recover from this type of disturbance.

Another threat to the species is overcollection, which has been suggested as part of the probable cause for the extirpation of the species at one of the Franconia sites.

Natural factors also play a role in plant mortality. Because of the harsh climate above timberline, only 40 percent of the seedlings survive each year, and during the first few years after germination, the mortality rate of the plants is very high. Frost heaving during the spring and fall is the most frequent natural cause of plant death. Many seedlings also die during the hot, dry periods from what is believed to be drought stress.

Critical Habitat for Robbins' cinquefoil has been determined to include the area in New Hampshire where the species currently occurs, a strip of land 4,066 feet long and 450 feet wide.

Our Service, the Forest Service, the Appalachian Mountain Club, and local botanists are cooperating in a study to determine if and how the Crawford Path should be relocated to protect the Robbins' cinquefoil. The Forest Service is also conducting studies to determine which areas are most suitable for transplanting.

PHACELIA FORMOSULA PROPOSED AS ENDANGERED

Phacelia formosula, a plant occurring at only one known location in Colorado, has been proposed by the Service as an Endangered species (F.R. 9/2/80). A member of the waterleaf family (Hydrophyllaceae), *Phacelia formosula* is threatened by habitat destruction from motorcycle traffic on the Jackson County-owned portion of the habitat.

On July 25, 1980, a field survey of the plant's habitat indicated that despite excellent conditions this growing season, only 117 mature specimens and 3 seedlings were found in four small patches. These individuals were localized on a sandstone bluff above the Michigan River, the only known location of *Phacelia formosula* since its discovery in 1918.

This species' limited habitat (about ¼ mile of the sandstone bluff) is being destroyed because of heavy use by off-road motorcyclists. There are no obstacles to motorcyclists, subjecting the fragile habitat to erosion from continual disturbance.

Photo by Irene M. Storks

Robbins' cinquefoil has declined primarily from habitat disturbance caused by hiker traffic.

Phacelia formosula was originally proposed for listing on July 16, 1976, but was subsequently withdrawn on December 10, 1979, along with other proposals which had expired. The Service now reproposes this species based on sufficient new information which indicates that *Phacelia formosula* is in danger of extinction.

Critical Habitat is not being proposed for the species at this time because publication of Critical Habitat maps would make the species more vulnerable to taking and vandalism, activities not directly prohibited for plants by the Endangered Species Act of 1973, as amended.

Comments on this proposal were due on November 3, 1980.

Service Accepts Petition to Delist Merriam's Montezuma Quail

The Service has accepted a petition to remove the Merriam's Montezuma quail (*Cyrtonyx montezumae merriami*) from the List of Endangered and Threatened Wildlife (F.R. 9/26/80). This petition, submitted by Mr. Jerome J. Pratt of Sierra Vista, Arizona, was supported with substantial evidence as determined by the Service Director.

Under regulations implementing Section 4 of the Endangered Species Act (F.R. 2/27/80), a species may be removed from the U.S. List based on the best available data indicating either its (1) extinction, (2) recovery, or (3) a finding that original data for classification were in error.

Merriam's Montezuma quail was described in 1897 from a single male specimen from Mount Orizaba, State of Vera Cruz, Mexico. A taxonomic review of this quail concluded that the single type specimen represented an uncommon plumage pattern found in specimens from nearby localities. Also, the type locality is in the narrow zone of intergradation between two well recognized subspecies, *C. m. montezumae* and *C. m. sallei*. No other series of specimens from the general area of Mount Orizaba is known.

Merriam's Montezuma quail was listed in the original Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, but was subsequently removed at the March 1979 Conference of the Parties for the same reasons expressed in the Pratt petition: the unique type specimen does not represent a recognized subspecies (or any higher taxonomic group) or a distinct geographic population of a vertebrate. Therefore, it no longer meets the definition of a "species."

The public is invited to submit data or other relevant information to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240 by November 25, 1980. An additional comment period will be provided for any proposed rule.

'EWA PLAINS 'AKOKO PROPOSED AS ENDANGERED

The Service has proposed a native Hawaiian shrub, the 'Ewa Plains 'akoko (*Euphorbia skottsbergii* var. *kalaeloana*), for listing as an Endangered species. Development of dockside facilities in connection with the construction of a

Continued on page 6

'EWA PLAINS 'AKOKO

Continued from page 5

proposed deep-draft harbor poses the principal danger to the existence of this taxon, the only known survivor of three plant taxa originally endemic to the 'Ewa Plains, Oahu, Hawaii.

Another variety of the same species, *Euphorbia skottsbergii* var. *skottsbergii*, which formerly was found closer to the shoreline in the same area, was last seen in 1932 and is presumed extinct.

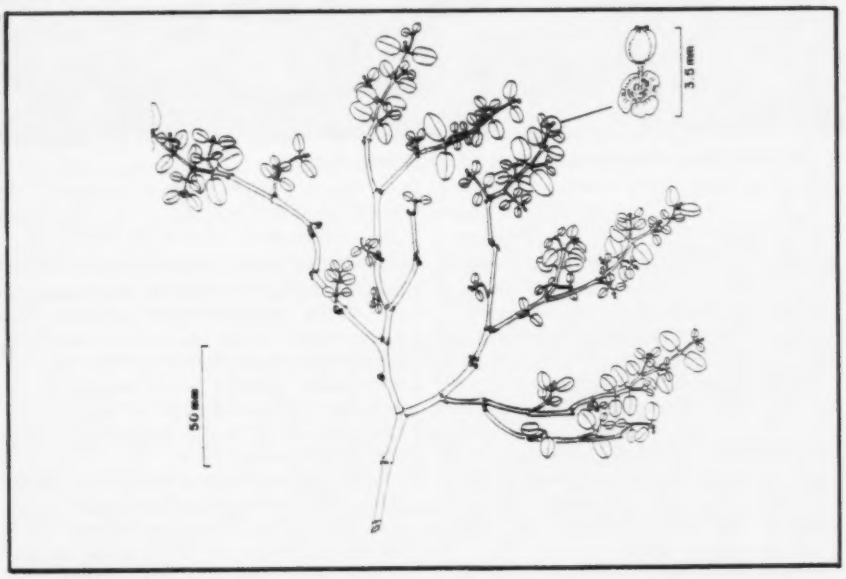
The 'Ewa Plains 'akoko was previously proposed for Endangered status on June 16, 1976, along with approximately 1,700 other plant species which were identified in a petition prepared by the Smithsonian Institution, although it was considered extinct at the time. This present proposal is based on information available at the time of the 1976 proposal and information gathered between then and the time of withdrawal (F.R. 12/10/79), as well as significant new information.

The exact natural range of this plant is unknown, but it probably did not exceed beyond the coralline plains of the 'Ewa area. Loss of native habitat in this area, which began with polynesian settlement of the islands, has been so thorough that no predominately native habitat can be said to be present any longer.

Another factor threatening the survival of the species has been competition from aggressive weedy species that now dominate vegetation in the area. It is also possible that decline of native pollinating insects has affected the 'akoko's reproductive success.

Although the species survives in non-native vegetation, the greatly altered ecosystem in which it occurs cannot reasonably be said to be essential to its conservation and probably is incapable of conversion back to anything even approaching its original composition. Therefore, no Critical Habitat has been proposed.

Comments from the public regarding this proposed rule were due by November 3, 1980.



Reprinted from 'Ewa Plains Botanical Survey

'Ewa Plains 'akoko

Service Withdraws Callippe Silverspot Butterfly

The proposal to list the Callippe silverspot butterfly (*Speyeria callippe callippe*) as an Endangered species with Critical Habitat has been withdrawn by the Service (F.R. 9/30/80). The Service Director decided not to list this species, which inhabits essentially the same area as the federally protected mission blue butterfly (*Icaricia icarioides missionensis*), at the present time. The Director also determined that insufficient data was available on the effects of potential housing development in the area occupied by the species. One of the main considerations bearing on the Director's decision was the fact that the County of San Mateo, California, is conducting ongoing studies on the species' biology and on the effects of potential housing development on the species.

When it is available, the Service will consider the information from these studies, as well as other available information, in deciding whether to repropose this butterfly as a Threatened or Endangered species.

Photo by Irene H. Stuckey

Isotria medeoloides, *one of the rarest orchids in America.*

ENDANGERED STATUS SOUGHT FOR SMALL WHORLED POGONIA

Often referred to as the rarest orchid in America, the small whorled pogonia (*Isotria medeoloides*) has been proposed by the Service for listing as an Endangered species. There are only 16 known populations in the eastern United States and Canada numbering 150-175 individual plants.

Isotria medeoloides is being threatened by the inadvertent loss of populations to habitat alteration, such as golf courses and housing complexes, and taking by collectors for non-commercial purposes. Today, there are nearly as many, if not more, dried specimens of *Isotria medeoloides* in herbaria than are known to exist in the wild.

Historically, this plant has been known to occur in 49 counties in 17 eastern States and Canada. In 1979, *Isotria medeoloides* was known to occur in only 12 counties in 11 different States and 1 county in Ontario, Canada. The plant is most often associated with relatively open areas in deciduous hardwoods; either beech-birch-maple or oak-hickory. Suitable habitats range from dry, rocky, wooded slopes to moist streambanks.

The Service is not proposing Critical Habitat for this species because of its hsitory of taking and the lack of prohibitions against taking of plants in the Endangered Species Act. Designation of Critical Habitat would only call further attention to existing populations.

Official listing under the Endangered Species Act of 1973, as amended, would allow for the implementation of various conservation and recovery activities aimed at insuring the continued existence of this plant throughout its range.

Comments on this proposal were due November 10, 1980.

PROPOSALS FOR 8 SPECIES WITHDRAWN

The Service has withdrawn proposals to list eight arthropod species as either Endangered or Threatened in compliance with 1978 amendments to the Endangered Species Act (F.R. 9/2/80). The proposals to list the Kaui cave wolf spider (*Adelocosa anops*), Kaui cave amphipod (*Spelaeorchestia koloana*), blue-black silverspot butterfly (*Speyreria nokomis nigrocaerulea*), Dakota Skipper butterfly (*Hesperia dacotae*), Great Basin silverspot butterfly (*Speyreria nokomis nokomis*), Karner blue butterfly (*Lycaeides melissa samuelis*), Pawnee montane skipper butterfly (*Hesperia pawnee montana*), and San Francisco tree lupine moth (*Grapholita edwardsiana*) have expired because they were not made final within the prescribed two years from the proposal dates (F.R. 6/16/78 and F.R. 7/3/78).

These species may be reproposed for listing if it is determined that sufficient new information is available to warrant such a proposal.

Devil's River Minnow, Virgin River Chub Proposals Withdrawn

Proposals to list the Devil's River minnow (*Dionda diaboli*) and Virgin River chub (*Gila robusta seminuda*) as Threatened (F.R. 8/15/78) and Endangered (F.R. 8/23/78) species, respectively, have been withdrawn. The Service decided not to list the Devil's River minnow because it was felt that the local affected communities needed more time to fully understand the impact of this proposed listing. Confusion apparently arose because of the public's belief that the Service was unable to offer conclusive data on the numbers and distribution of this fish. Accordingly, it was thought by many members of the public in the locally affected area that the Service had not adequately presented its case for listing the species. Also, the local communities expressed an interest in managing the species, and the Fish and Wildlife Service Director wanted to afford them that opportunity.

The proposed listing action for the Devil's River minnow, occurring in the Devil's River and San Felipe Creek in Val Verde County, Texas, and the Virgin River chub, occurring in the Virgin River in southwest Utah, northwest Arizona, and southern Nevada, has been withdrawn. The Virgin River chub was withdrawn in compliance with 1978 amendments to the Endangered Species Act which require proposals to be withdrawn if they are not made final within two years of publication in the *Federal Register*. Notice of the withdrawal was published in the September 30, 1980, *Federal Register*.

These species may be reproposed for listing on a determination by the Secretary (of the Interior) that sufficient new information is available to warrant such a proposal.

STATUS REVIEW OF 3 FISHES

The Service is reviewing the status of the Alabama shovelnose sturgeon (*Scaphirhynchus* sp.), frecklebelly madtom (*Notorus munitus*), and freckled darter (*Percina lenticula*) to determine if any, or all of these species should be proposed for listing as Endangered or Threatened species (F.R. 9/2/80).

All three species generally require the same type of habitat, i.e. sand and/or gravel substrate with moderate to swift current in large, free-flowing rivers.

The Service is seeking the views of the Governors of Alabama, Georgia, Louisiana, Mississippi, and Tennessee, as well as other Federal agencies and interested parties, and is requesting from them any data relative to these species. Information is also solicited on any areas that may qualify for Critical Habitat designation.

Information should be submitted on or before December 1, 1980, to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

PUBLIC MEETINGS/HEARINGS

Due to the often unavoidable short notice in scheduling public meetings and hearings (in compliance with 1978 amendments to the Endangered Species Act) for certain listing and Critical Habitat proposals, we regret that we cannot always relay adequate notice to our readers. Until further notice, we will attempt to provide available information through this column. Due to space limitations and uncertainty of *Federal Register* publication dates, summaries of pertinent proposed rulemakings may not necessarily accompany meeting notices, but may be included in a subsequent issue of the BULLETIN.

Species/Action	Affected States(s)	Location of Meetings/Hearings	Date	Time
Kentucky cave shrimp: proposed C.H.	KY	Meeting: Downing University Center, Room 305, Western Kentucky University, Bowling Green, KY	12/10/80	7:00 p.m.
Monito gecko: proposed E/C.H.	PR	Meeting: Amphitheater/General Studies, University of Puerto Rico, Mayaguez, PR	12/2/80	10:00 a.m.
		Conference Room, Dept. of Natural Resources, Puerta de Tierra (San Juan), PR	12/3/80	10:00 a.m.
Hawksbill sea turtle: proposed C.H.	PR	Meeting: Amphitheater/General Studies, University of Puerto Rico, Mayaguez, PR	12/2/80	10:00 a.m.
		Conference Room, Dept. of Natural Resources, Puerta de Tierra (San Juan), PR	12/3/80	10:00 a.m.
		Conference Room, Dept. of Natural Resources Headquarters, Isla Culebra, PR	12/4/80	10:00 a.m.

E—Endangered
C.H.—Critical Habitat

NEW PUBLICATIONS

An 854-page *Atlas of North American Freshwater Fishes*, prepared jointly by the North Carolina State Museum of Natural History and the U.S. Fish and Wildlife Service, will be published by the museum. This volume, a collection of accounts of the 777 species known to occur in the fresh waters of Canada and the United States, was written by some of the most active fish researchers in the two nations. Cost is $20 ($22.50 Canadian), plus $3 for postage and handling. Send orders to the North Carolina State Museum of Natural History, P.O. Box 27647, Raleigh, North Carolina 27611, Attention: Fish Atlas.

The *New England State Reports on Rare, Threatened, and Endangered Plants*, prepared by the New England Botanical Club in cooperation with the U.S. Fish and Wildlife Service, are now available through the National Technical Information Service (NTIS). Report order numbers and prices are as follows:

REPORT	ORDER NUMBER	PRICE
New Hampshire	PB 80168933	$8.00
Massachusetts	PB 80176126	$7.00
Rhode Island	PB 80176159	$5.00
Maine	PB 80176167	$6.00
Connecticut	PB 80176175	$6.00
Vermont	PB 81106734	$7.00

Reports may be obtained by writing to the U.S. Department of Commerce, National Technical Information Service, Springfield, Virginia 22161, and including a check payable to "National Technical Information Service."

The Service has published a booklet which examines the status of 39 species and subspecies of amphibians. *Conservation of the Amphibia of the United States: A Review* (U.S. Fish and Wildlife Service Resource Publication 134) was prepared by R. Bruce Bury and C. Kenneth Dodd, Jr. of our Service, and Gary M. Fellers of the National Park Service. Included in the account of each species is a description, range map, discussion of habitat, status, and recommendations for protection. Free copies are available from the Department of the Interior, U.S. Fish and Wildlife Service, Publications Office, Washington, D.C. 20240.

Vascular Plants of Restricted Range in the Continental Northwest Territories, Canada (Syllogeus No. 23) has been published by the Canadian National Museum of Natural Sciences. This publication describes the distribution of 530 species. Copies are available by mail from the National Museum of Natural Sciences, Ottawa, Canada K1A 0M8.

BOX SCORE OF SPECIES LISTINGS

Category	Endangered U.S.	Endangered Foreign	Threatened U.S.	Threatened Foreign	Species Total
Mammals	32	242	3	20	279
Birds	66	159	3	0	214
Reptiles	13	61	10	4	75
Amphibians	5	8	3	0	16
Fishes	34	15	12	0	57
Snails	2	1	5	0	8
Clams	23	2	0	0	25
Crustaceans	1	0	0	0	1
Insects	7	0	6	1	13
Plants	51	2	7	3	60
TOTAL	234	490	49	28	748

Number of species currently proposed: 44 animals
9 plants
Number of Critical Habitats listed: 47
Number of Recovery Teams appointed: 68
Number of Recovery Plans approved: 39
Number of Cooperative Agreements signed with States:
37 (fish & wildlife)
8 (plants)

September 30, 1980

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

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November/December 1980 Vol. V, No. II

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ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

Snail Darter Discovered at a New Location

Michael Bender

The tiny snail darter (*Percina tanasi*), an Endangered species of perch known historically from only a short section of the Little Tennessee River, has been found in a 10-15 mile stretch of South Chickamauga Creek straddling the Tennessee/Georgia border.

Dr. David Etnier, a University of Tennessee ichthyologist who initially discovered the species, made the new find on November 1 of this year while seining a portion of the creek just inside the Tennessee border, together with graduate student Andy Haines. Several days later, Tennessee Valley Authority (TVA) biologist Charles Saylor accompanied several University of Georgia biologists to a site upstream and across the State line, where more darters were captured and released. Reliable population estimates for South Chickamauga Creek cannot yet be made, but Saylor suggests a minimum of about 200.

It is "extremely unlikely," Dr. Etnier says, that the newly found snail darters are migrants from a Hiwassee River transplant site some 80 miles downstream. The Chickamauga darters are apparently a natural population, and have always existed either in the creek or in nearby streams. They went undetected for a number of years despite an intensive search by TVA, which took samples from at least 134 localities on 35 streams throughout the Tennessee Valley which were thought to contain possible darter habitat. Further surveys will be conducted on Chickamauga and several other streams in the area.

Unfortunately, the snail darter is not yet out of danger. Chickamauga Creek has a long history of pollution problems from industrial and sewage wastes, resulting in frequent fish kills. In addition, biologists do not yet know whether or not the experimental transplantations of snail darters into the Hiwassee and Holston Rivers will be a long-term success.

The only officially designated Critical Habitat for the snail darter was destroyed when Congress exempted TVA's Tellico Dam Project from the provisions of the Endangered Species Act (see October 1979 *Technical Bulletin*); however, the Service will now be studying Chickamauga Creek for suitability as additional Critical Habitat. According to TVA spokesman Louis Gwin, the agency has no plans for any future projects on the creek.

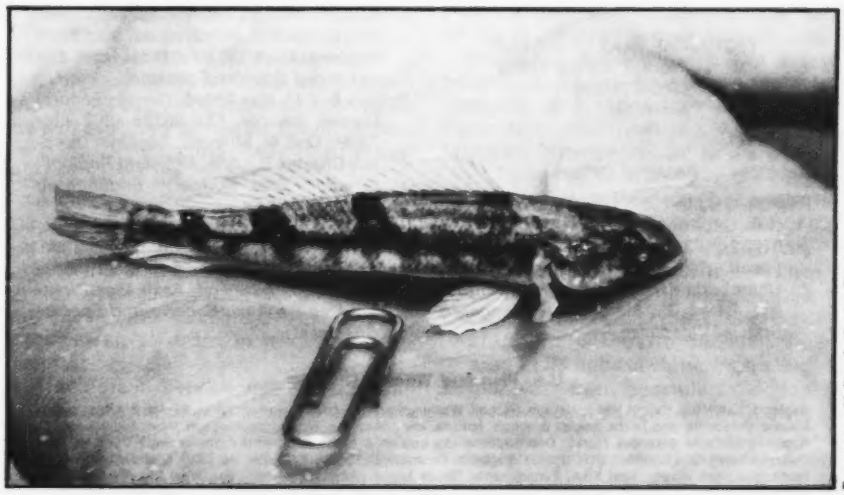
ABOUT THIS ISSUE

Dear Readers,

As you may have noticed, this issue of the BULLETIN is dated November-December 1980. The reason for this combined issue is twofold—(1) the BULLETIN is presently understaffed, making it difficult to come out with a timely finished product, and (2) November was a slow month for rulemaking activities, which means there would have been little to report in a separate December issue. Our next issue will be January 1981, Vol. VI, No. 1.

Have a happy and safe holiday season!

Morey Norkin
Acting Editor



Tennessee Valley Authority Photo

The tiny snail darter, which became the focus of national attention when its presence in the Little Tennessee River temporarily halted construction of the Tellico Dam, was recently discovered at a new location.

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REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of October.

Region 3. A $3,000 reward is being offered for information leading to the arrest and conviction of the person or persons who shot and wounded a young bald eagle in late October in Pierce County, Wisconsin. The bird was treated for a wing fracture at the University of Minnesota's Raptor Rehabilitation Center, St. Paul. According to Dr. Patrick Redig of the Center, the fracture will take six to eight weeks to heal. When the bird is fully recovered it will be released in an area near the Mississippi River.

The U.S. Fish and Wildlife Service is paying $2,500 of the reward money, the remainder is from the National Wildlife Federation.

Region 4. In the absence of any known dusky seaside sparrow (*Ammospiza maritima nigrescens*) females, all plans for a captive breeding program have been cancelled. Another survey for remaining birds will be conducted in 1981, but only one presumed male is currently known to be left in the wild. A cooperative agreement has been signed with the Santa Fe Community College at Gainesville, Florida, to provide captive care for the five males now being held by the Florida Game and Fresh Water Fish Commission.

Service and State of Louisiana personnel have recently completed a cooperative project involving development of an alligator population model to aid in reassessing the status of the alligator in Louisiana and possibly other parts of its range. Use of this method to provide more accurate population estimates should facilitate further delisting of the species.

Region 5. A draft recovery plan for the Virginia round-leaf birch (*Betula uber*) is being reviewed by the Regional Office.

Region 6. In 1980, attempts were made to release 58 American peregrine falcons (*Falco peregrinus anatum*) reared by the Peregrine Fund (Fort Collins, Colorado) into the wild in five western States. Problems with predators at two sites resulted in 52 peregrines being released. It is believed that 43 birds survived to independence.

An *Illustrated Guide to Special Interest Vascular Plants of Wyoming* has been printed. Copies are available from the Regional Office.

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Alaska Area:** Alaska.

The ENDANGERED SPECIES TECHNICAL BULLETIN is published monthly by the U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

Hudsonia Protection Fostered By Local Cooperation

Marshall P. Jones

A successful public meeting and the support of local community leaders contributed to the speedy adoption of a final rule listing mountain golden heather (*Hudsonia montana*) as a Threatened species and designated its Critical Habitat in North Carolina's Pisgah National Forest (F.R. 10/20/80).

In a way, *Hudsonia's* problems seem to symbolize a great irony in today's natural resource conservation—an ever increasing crush of outdoor admirers

Photo by E. Laverne Smith

Fish and Wildlife Service botanists, Nora Murdock and Ben Sanders, examine a population of Hudsonia montana.

who threaten to smother fragile natural areas with their love.

Thus the public support for *Hudsonia's* listing is especially important. It began with a letter from the Burke County Manager, Kenneth R. Thompson, endorsing the proposal. Subsequently, the County Board of Commissioners, after receiving a visit from Area Office staff to explain the effects of the proposal, adopted a resolution endorsing the action.

The State of North Carolina also gave its support to the listing. At the July 1, 1980, public meeting a representative of the State Department of Agriculture's Plant Protection Program announced that on that very day, the State had adopted its first official list of Endangered and Threatened Plants, and *Hudsonia* was included on it. In a written comment, the State Department of Natural Resources and Community Development's Natural Heritage Program also favored the listing. (Since that time, a Cooperative Agreement for Plants has taken effect between the State and the Service, enhancing the State's capability for undertaking programs for listed plants.)

Questions about possible closures of areas were brought up at the meeting by the North Carolina Bowhunters Association and a local rock climbing group. This would be a Forest Service decision which the Fish and Wildlife Service could not officially address, but it was pointed out that *Hudsonia* conservation can likely be achieved by trail rerouting and activity restrictions affecting only the actual ledges where the plant grows.

A climbing group suggested it might be able to assist by publicizing the need for protecting the plant in its newsletter. Furthermore, the Outward Bound program, which runs a rock climbing school on leased land near the Critical Habitat, volunteered to assist in monitoring the plant.

The Forest Service has already initiated actions to conserve the plant. Although the Forest Service's official comment on the proposal expressed its view that listing is not necessary at this time, they have no quarrel with the importance of protecting the plant. A monitoring program on Table Rock initiated this spring will hopefully provide data for development of a management plan. *Hudsonia* is one of many resource management problems the Forest Service must address in attempting to strike a balance between legitimate use and abuse of wilderness area.

Protecting *Hudsonia* may not always be easy, but consensus among affected agencies and individuals is that it is definitely worthwhile. As County Manager Thompson said in his letter,

> Since Burke County is the only known locality in which this species grows, protecting it is very important and will help Burke County maintain its uniqueness. The County is proud of its mountainous regions, especially the Table Rock area, and wishes to maintain the area in its natural state. Protecting this plant from possible extinction is in accordance with County policy.

It is gratifying to see that sometimes in the turbulent world of Endangered Species, County, State, and National policy can indeed coincide. Now the real work of insuring a piece of the rock for this tiny wilderness creature can begin.

STATE REPORT

Nebraska Game and Parks Commision

BLACK-FOOTED FERRET, WHOOPING CRANE, AND BALD EAGLE PROTECTED IN NEBRASKA

Submitted by Ross A. Lock
Nebraska Game and Parks Commission

Various research and management projects are currently underway in Nebraska for the benefit of the federally Endangered bald eagle (*Haliaeetus leucocephalus*), black-footed ferret (*Mustela nigripes*), peregrine falcon (*Falco peregrinus anatum*), and whooping crane (*Grus americana*). The swift fox (*Vulpes velox hebes*), a State endangered species, is also under investigation. (The northern swift fox is listed by the U.S. Fish and Wildlife Service as Endangered in Canada.) The Nebraska program is being conducted under a Cooperative Agreement with the U.S. Fish and Wildlife Service. Under this agreement, Nebraska expects to receive over $34,000 in matching Federal funds this fiscal year.

Nebraska's endangered species program was initiated in 1971 with the creation of one full-time biologist position. Early efforts, however, were meager due to limited funding derived mainly from hunting license revenues. In addition, the State's endangered species law was far from adequate as it granted the Nebraska Game and Parks Commission the authority to only list species as endangered and to protect them from taking or hunting. While the law permitted the Commission to carry out a program for the conservation of wildlife threatened with extinction, it did not establish a funding base.

In 1975, the Nebraska State Legislature passed the Nongame and Endangered Species Conservation Act that closely resembled the Model Law developed by the International Association of Game, Fish, and Conservation Commissioners. The act not only broadened the authority and responsibility of the Commission with respect to endangered and threatened species and nongame animals deemed in need of conservation, but it authorized general fund tax dollars to be made available to the Commission. Following enactment of Nebraska's Nongame and Endangered Species Conservation Act, activities in this area have increased and the program has slowly expanded.

Endangered and threatened species lists, along with regulations that specified management policy, were developed by the Commission in late 1975. A publication on the *Endangered and*

Nebraska Game and Parks Commission Photo

Nebraska is an important wintering area for bald eagles.

Threatened Wildlife of Nebraska was also prepared and made available to the public.

In 1977, Nebraska entered into a Cooperative Agreement with the U.S. Fish and Wildlife Service qualifying the State for matching fund assistance. One new nongame and endangered species biologist position was added to the staff during the same year. The State budget was recently increased to allow for two additional staff positions.

The nongame and endangered species staff is performing research, surveys and inventories, and management activities on species listed as endangered or threatened and nongame species determined to be in need of conservation, as well as monitoring the status of other nongame birds, mammals, and reptiles. Most of the intensive research is being conducted through contracts with universities and colleges. Consultation services are also provided to other State departments in Nebraska so that they may utilize their authorities in carrying out programs for the conservation of endangered and threatened species.

Bald Eagle

Nebraska currently ranks 13th among States harboring wintering bald eagles, according to the latest National Wildlife Federation sponsored survey. (A Commission biologist, Greg Wingfield, is the State coordinator for the survey.) Information on the biological characteristics and status of habitat utilized by these birds is being collected. Food habits and behaviorial patterns are also being examined. Three areas believed to contain the major bald eagle roosting and feeding sites in the State are under investigation. In an effort to determine roost and feeding area fidelity and other survival requirements, behavior patterns will be studied this winter through observation of color-marked birds. Several eagles will be live-trapped in primary feeding areas for color marking with acrylic paint.

Essential roosting and feeding habitat will be delineated and management plans will be prepared and implemented for those habitats requiring protection.

Black-Footed Ferret

The black-footed ferret, one of the Nation's most Endangered animals, continues to be searched for in Nebraska. For the past seven and one half years, sightings of ferrets have been solicited annually from the public. Over 100 reports have been received to date. Location of all reliable reports are checked for signs of ferrets, and prairie dog towns are spotlighted for ferrets where warranted.

None of the reported sightings have been verified to date. In addition, no sign or other positive evidence of ferrets has been found in the State since 1949. However, several sightings are reported each year that cannot be discredited.

Nebraska Game and Parks Commission Photo

The elusive black-footed ferret continues to be searched for in Nebraska.

Peregrine Falcon

Nebraska is one of several western States cooperating in an attempt to re-establish breeding populations of peregrines. In 1979, Nebraska was one of

three States selected to test the reintroduction technique of cross fostering. Through a cooperative agreement with the U.S. Forest Service and the Peregrine Fund, three peregrine falcon nestlings were placed in a prairie falcon nest located on Federal Government land in the northwest part of the State. Five young prairie falcons in the nest were relocated in other active prairie falcon nests. The adult prairie falcons accepted the peregrine nestlings as their own, taking excellent care of them for 10 days. However, on the 11th day, two of the three peregrine nestlings had to be removed following predation on the other by a golden eagle. Reintroduction efforts in 1980 had to be aborted on the day peregrines were to be placed in a prairie falcon nest due to suspected avian predation.

One breeding record is known for the northwestern corner of the State, where old and young peregrines were observed in mid-August 1903, flying about the cliffs. The eyrie used by these birds was not described in the literature. No other evidence of nesting peregrines is known from Nebraska.

Whooping Crane

Nebraska ranks 3rd out of 7 States, found in the whooping crane's primary migration path, in the number of verified sightings recorded since 1960. The 40 verified sightings made in Nebraska over the past 20 years represents approximately 14 percent of the total number recorded for the entire migration path.

Since Nebraska represents one of the major stopover areas for whoopers, efforts are being made to verify all reported observations and to determine biological characteristics and status of habitat utilized. Such information is essential to the proper delineation of Critical Habitat, and to recommending needed habitat protection and enhancement programs.

Protective surveillance of whooping cranes known to be on the ground is provided by Game and Parks Commission personnel. Migrations are closely followed through the U.S. Fish and Wildlife Service monitoring system to assist efforts in determining possible occurrence in the State. This is especially important in preventing exposure of the whoopers to fowl cholera, which occurs each spring in the south central portion of the State, a prime stopover area. Any

U.S. Fish and Wildlife Service Photo

Nebraska is one of the major stopover areas in the migration path of the Endangered whooping crane.

whoopers found on the ground where an epizootic of fowl cholera is occurring are hazed out immediately.

Swift Fox

An in-depth ecological study of the swift fox has been completed recently under a research contract with the University of Nebraska. The study identified food habits, home range, mortality factors, and habitat requirements. This information will be used to prepare a plan that will delineate measures needed to restore these animals to the prairies. Public education will be an essential part of this plan.

Other Studies on Nongame And Endangered Species

The State is concerned about the status of nine species which are listed as threatened in Nebraska: the least tern, mountain plover, southern flying squirrel, lake sturgeon, pallid sturgeon, northern redbelly dace, pearl dace, finescale dace, and the brook stickleback. Investigations are underway to determine their distribution and habitat requirements.

A variety of nongame species, although not listed as endangered or threatened, are receiving considerable attention because of suspected declining populations, small nesting areas subject to decimation, or because an opportunity exists to maintain a population at an existing level, thus preventing the need for future listing. Several raptors are included in this category: the ferruginous hawk, coopers hawk, prairie falcon, golden eagle, burrowing owl, and barn owl. Other bird species of interest are the piping plover, black tern, Forster's tern, black-crowned night heron, double-crested cormorant, and great blue heron.

The status and occurrence of certain mammals such as the bobcat, black-tailed and white-tailed jackrabbit, red fox, badger, and spotted skunk are being evaluated.

During the next year, Statewide surveys will be initiated on all nongame birds, mammals, reptiles, and amphibians to determine habitat, distribution, and relative abundance. Programs are being developed to acquire natural or unique habitat and to coordinate enhancement and protection of urban bird habitats with cities and towns.

Rulemaking Actions

October, 1980

Service Withdraws Proposed Beetles

The Service has withdrawn proposals to list eight North American beetles as Threatened and Endangered species in line with 1978 amendments to the Endangered Species Act (F.R. 10/1/80). The species for which the two-year time limit has expired are Beller's ground beetle (*Agonum belleri*) (Endangered), Sacramento anthicid beetle (*Anthicus sacramento*) (Threatened), globose dune beetle (*Coelus globosus*) (Threatened), San Joaquin dune beetle (*Coelus gracilis*) (Threatened), Majave rabbitbrush longhorn beetle (*Crossidius majavensis majavensis*) (Endangered), Robinson's rain scarab beetle (*Phobetus robinsoni* (Threatened), Andrews' dune scarab beetle (*Pseudocotalpa andrewsi*) (Threatened), and Giuliani's dune scarab beetle (*Pseudocotalpa giulianii*) (Threatened).

These species were proposed for listing on August 10, 1978, along with the Delta green ground beetle (*Elaphrus viridis*) and the Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) which were determined to be Threatened species with Critical Habitat (F.R. 8/8/80).

Service Proposes Kentucky Cave Shrimp

The service has proposed a blind crustacean, the Kentucky cave shrimp (*Palemonias ganteri*), as an Endangered species with Critical Habitat (F.R. 10/17/80). Known to occur only in the Roaring River passage of the Flint Mammoth Cave System, Mammoth Cave National Park, Edmonson County, Kentucky, this species is threatened by unseasonal flooding of its limited habitat, and also groundwater contamination.

The Kentucky cave shrimp was originally proposed as a Threatened species on January 12, 1977. That proposal was withdrawn on December 10, 1979, in line with 1978 amendments to the Endangered Species Act. The Service has since received a petition to list this species, which it has determined contains sufficient new information to warrant this reproposal.

A member of the family Atydae, of which three existing species are known from North America north of Mexico, the Kentucky cave shrimp's preferred habitats are pools exposed to seasonal floodings. The species has not been found in recent years in areas where it was formerly abundant. An impoundment on the Green River resulted in year-round flooding and the elimination of much of the shrimp's former habitats.

On September 1, 1979, a single dead specimen was found in the shrimp pools of the Roaring River passage. Previously, the last find there was recorded in 1967.

Groundwater contamination might also be affecting the species' habitat. Recently, an incident of groundwater contamination caused a kill of crayfish and other animals in part of the cave system.

The proposed Critical Habitat area for the Kentucky cave shrimp is the Roaring River passage of the Flint Mammoth Cave System. This area contains the last preferred habitat of this species, and is the only remaining area where the species is known to occur and all of the physical and biological constituents necessary for its survival can be found.

A public meeting on the proposal was held on December 10, 1980 (see the October 1980 BULLETIN). Comments from the public on this proposal must be received by January 15, 1981. They should be submitted to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

RED LECHWE RECLASSIFIED AS THREATENED

Because its populations are stable or increasing over much of its range, the red lechwe (*Kobus leche*) has been reclassified by the Service from Endangered to Threatened status (F.R. 10/1/80).

Although the red lechwe does not appear to be Endangered throughout a significant portion of its range, the Service believes the species still qualifies for Threatened status. Many thousands of square miles of wetlands habitat favored by the red lechwe have been lost because of development, which has been continually increasing in Africa. The species is also threatened by uncontrolled local hunting.

The red lechwe was proposed for reclassification on November 27, 1979. For more information on that proposal and the status of the lechwe see the December 1979 BULLETIN.

Rulemaking Actions Continued on page 8

MALHEUR WIRE-LETTUCE PROPOSED AS ENDANGERED

Known only from one small population in Harney County, Oregon, Malheur wire-lettuce (*Stephanomeria malheurensis*) has been proposed by the Service as an Endangered species with Critical Habitat (F.R. 10/31/80). The extremely restricted range of this species makes it vulnerable to even small land disturbances in and around its habitat.

The Bureau of Land Management (BLM) administers all of the land supporting *Stephanomeria malheurensis*. It is likely that zeolite mining will occur in the area in the near future since mining claims cover the entire area of the species' habitat as well as all adjacent areas. Although a 160-acre area, which includes the entire population of *Stephanomeria malheurensis*, has been fenced to protect the species from grazing, zeolite is a locatable mineral under mining law.

If this proposed rule should become final, BLM would be responsible for carrying out the intentions of the Endangered Species Act on this land. However, the Mining Law of 1872 may restrict BLM's authority to regulate mining activities of locatable minerals, including zeolite. Successful protection of the species and its habitat will require cooperation between BLM, the private mining interests, and our Service.

Another threat to this plant is the invasion of its habitat by cheat grass (*Bromus pectorum*). The cheat grass invaded the burnt area that resulted from a 1972 fire which swept much of the colony area. Fieldwork during August 1980 showed only a few dozen individuals of *Stephanomeria malheurensis* remaining. A September 1980 report indicated that the plant is threatened with extinction unless immediate action is taken to control the cheat grass invasion.

Critical Habitat is included in this proposal and has been designated to include the 160-acre Scientific Study Area on BLM land, 27 miles south of Burns in Harney County, Oregon. This area includes a buffer zone to protect the species from adverse indirect impacts and is considered essential for the species' conservation.

A public meeting and a public hearing on this proposal were held on November 13 and December 2, 1980, respectively. Comments should be received on or before January 29, 1981. Submit comments or materials to the Regional Director (SE), Department of the Interior, U.S. Fish and Wildlife Service, 500 N.E. Multnomah Street, Suite 1692, Portland, Oregon 97232.

Threatened Status Proposed For Madison Cave Isopod

The Madison Cave isopod (*Antrolana lira*), an eyeless and unpigmented crustacean, has been proposed by the Service to be a Threatened species (F.R. 10/6/80). Found only in three small pools of water in Augusta County, Virginia, the Madison Cave isopod is threatened by vandalism and mercury pollution.

Two of the pools in which the species is found are in Madison Cave, the other is in a nearby fissure. The species is of great scientific interest because of its uniqueness and its relationship to ocean-living members of the same family (*Cirolanidae*).

The very limited habitat of the isopod has been reduced and degraded by unauthorized visitors to Madison Cave. Trash accumulation and siltation in the pools of water have resulted from persons visiting the cave. The owner of the cave has gated the entrance to discourage visitation.

Another factor affecting the species and its habitat is mercury contamination from the nearby South River. There is apparently a subterranean connection between the pools and the river. The original source of the mercury pollution was an E. I. du Pont de Nemours and Company factory at Waynesboro, Virginia.

Critical Habitat has not been proposed for the Madison Cave isopod because of the threat created by visitation to the cave. Publication of a map and precise location of the cave would only increase the incidence of unauthorized visitation.

Comments on this proposal must be received by January 5, 1981, and should be submitted to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

SERVICE PROPOSES PERMANENT PROTECTION FOR BORAX LAKE CHUB

Protected as an Endangered species with Critical Habitat designated under an emergency rule, which expires on January 23, 1981 (F.R. 5/28/80), the Borax Lake chub (*Gila boraxobius*) is now being proposed by the Service for permanent protection (F.R. 10/16/80).

Emergency listing of the Borax Lake chub was initiated because of existing threats to its only known habitat. The fish is found in Borax Lake (a small, 10.2-acre, natural thermal lake), its outflow, and Lower Borax Lake located in the Alvord Basin in Harney County, Oregon. The chub has become isolated from the surrounding watershed because the lake's perimeter has risen from mineral precipitation. The perched nature of the lake, compared to the surrounding land, makes it extremely susceptible to human disturbance. Alteration of the lake's perimeter is lowering the water level, which adversely affects the chub by decreasing habitat and increasing water temperature.

Another threat to the Borax Lake chub is geothermal development. The entire Alvord Basin is a Known Geothermal Resource Area in which the Bureau of Land Management has already leased rights for geothermal exploration to private oil and geothermal companies. Exploratory drilling could create interconnecting aquifers or springs, which could result in Borax Lake being drained. Drilling might also disrupt the hot water aquifer feeding the lake, thereby changing the aquifer pressure or temperature.

Critical Habitat is proposed for Borax Lake and the acquatic environments associated with its outflow. Most of the area is owned by the Bureau of Land Management, which (in the event of a final rulemaking) would have to insure that activities it authorizes, funds, or carries out are not likely to jeopardize the continued existence of the Borax Lake chub. BLM will also have to insure that their activities will not result in the destruction or adverse modification of the Critical Habitat.

A public meeting and a public hearing were held on this proposal on November 13 and December 2, 1980, respectively. Comments were due by December 15, 1980.

Threatened Status Proposed For Silverling

The Service proposes the silverling (*Paronychia Argyrocoma* var. *albimontana*), a plant occurring in Maine, New Hampshire, and Massachusetts, to be a Threatened species (F.R. 10/27/80). Historically, this plant has been documented from approximately 27 locations in New England since it was first collected in the early 1800's. The plant is currently known to occur at only 13 of these sites.

A member of the carnation family (*Caryophyllaceae*), the silverling is threatened by heavy hiker traffic, overcollecting, a highly restricted range, and small population sizes. In New Hampshire, most of the nine sites where the plant occurs are in the White Mountain National Forest and are heavily used by hikers. Damage has occurred to plants located along trails. Because all of

Photo by Irene M. Storks

Paronychia argyrocoma *var.* albimontana, *a proposed Threatened species, occurs on the tops of mountains and ledges (generally below 4,000 feet) and along rocky stream shores or on riverside ledges.*

the New Hampshire silverling populations range in size from 1 to 60 tufts or individuals (colonies) per population and occupy small areas, they are extremely vulnerable to trampling and natural factors.

In Massachusetts, where a single population of *Paronychia argyrocoma* var. *albimontana* occurs, this plant's numbers have fluctuated since a description of the site in 1945. At that time, 196 colonies of the plant were reported on a small ledge on an island in the Merrimack River, Essex County. In 1978, 56 colonies were reported at the site. A 1980 census found 104 mature colonies, 93 seedlings, and 10 dead or nearly dead colonies. The cause of this fluctuation is unknown, but it may be due to human disturbance or natural population fluctuations.

Although seven sites have been reported in Maine, only three are known to exist. Little is known about the plant's status in the State.

Collecting of silverlings for scientific purposes has removed a significant number of plants from the wild. This is a serious threat, as several of the smallest populations consist of only one plant.

Because taking is such a serious threat and the plants occur in open, exposed areas near hiking trails, the Service feels that designation of Critical Habitat would not be in the best interest of the species, but would in fact place the species in greater jeopardy.

Comments on this proposal were due by December 26, 1980.

MONITO GECKO PROPOSED AS ENDANGERED

Known only from Isla Monito in the Commonwealth of Puerto Rico, the Monito gecko (*Sphaerodactylus micropithecus*) has been proposed by the Service as an Endangered species with its Critical Habitat delineated (F.R. 10/22/80).

An extremely rare lizard, only one adult Monito gecko has ever been collected in spite of intensive surveys. An egg was collected at the same time (May 1974) and both specimens were placed in the Florida State Museum. According to Dr. Howard W. Campbell who, with Dr. Fred G. Thompson, collected the gecko and egg, predation from introduced rats (*Rattus rattus*) may be the major factor contributing to the species' rarity. Dr. Campbell's trip report stated, "No quantitative estimate is available for their numbers, but it should be noted that, at night, one is never out of sight of at least one foraging rat and frequently several will be in sight at any given moment."

Previous surveys of Monito failed to turn up any lizards of the genus *Sphaerodactylus*, which are normally abundant when present. The gecko was described as a distinct species in 1977 and the Monito *Sphaerodactylus* has been difficult to ally taxonomically with any species nearby, including *S. monensis* of Mona Island only 5 kilometers away.

The Service believes that because the Monito gecko is known to occur only on the tiny (300 x 500 meters) Isla Monito, the entire island should be designated as Critical Habitat. If the area were destroyed, the gecko would become extinct. Also, the rat problem is such that the island must be carefully managed to insure the continued existence of the lizard as well as its extensive sea bird colony.

Activities which might be detrimental to the environment of this species and lead to further reduction of its range include using Monito as a target for Naval bombing practice, as was considered in the past, and other types of physical alteration of the island.

Public meetings were held on this proposal in the Commonwealth of Puerto Rico (see the October 1980 BULLETIN).

Photo by C. Kenneth Dodd, Jr.

Proposed as Critical Habitat for the Monito gecko, Isla Monito is the only area where the species is known to occur.

Comments from the public must be received by January 21, 1981, and should be sent to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

PUERTO RICAN BEACHES PROPOSED AS CRITICAL HABITAT FOR HAWKSBILL TURTLE

The Service has proposed to designate Critical Habitat for the hawksbill sea turtle (*Eretmochelys imbricata*) in the Commonwealth of Puerto Rico (F.R. 10/22/80). Protected as an Endangered species since 1970, much hope for the survival and recovery of this species depends upon the maintenance and protection of suitable, undisturbed nesting beaches.

One area included in the proposal, the beaches of Mona Island, was cited as being of major importance as a nesting area for the hawksbill at the World Conference on Sea Turtle Conservation held in November 1979, in Washington, D.C. Designation of Mona Island as Critical Habitat for the species was one recommendation made at the 1979 Conference.

Hawksbill sea turtle populations are apparently declining worldwide because of commercial trade in tortoise-shell items and stuffed specimens, human consumption of eggs or destruction of eggs by predators, and destruction or alteration of nesting beaches. Other threats to the hawksbill include killing for meat (this only happens occasionally because hawksbill meat is considered poisonous in many parts of the world), accidental entanglement in fishing nets, incidental catches in trawls, pollution and destruction of nesting and feeding reefs, and harassment while nesting and swimming.

Critical Habitat for the hawksbill sea turtle in the Commonwealth of Puerto Rico was originally proposed on May 24, 1978. That proposal was withdrawn on March 6, 1979, because of substantive changes made in the requirements for determining Critical Habitat by the Endangered Species Act Amendments of 1978. The areas in the present proposal are essentially the same as those in the original proposal.

Mona Island

Mona Island is owned by the Commonwealth fo Puerto Rico and is managed as a Natural Reserve. The island is uninhabited except for Puerto Rico Conservation Rangers who enforce wildlife laws. The entire 7.2 kilometers of beaches on Mona Island, to a point 150 meters from shore, are proposed as Critical Habitat for the hawksbill sea turtle. Mona Island is already Critical Habitat for the federally-listed yellow-shouldered blackbird (*Agelaius xanthomus*), Mona ground iguana (*Cyclura stejnegeri*), and Mona boa (*Epicrates monensis monensis*).

Culebra Island

The areas proposed as Critical Habitat include nearly all the major sand beaches on the north shore of the island. These areas (Playa Resaca, Playa Brava, and Playa Larga) are currently owned by the U.S. Navy, but are scheduled to be transferred to the Commonwealth of Puerto Rico sometime in 1981. Under draft agreements, the beaches will not be further developed and will be managed by the Commonwealth as marine turtle nesting beaches with numerous conditions on human use and activities.

Isla Culebrita

A part of the National Wildlife Refuge system, this island is uninhabited with virtually no public access. This island may be transferred to the Commonwealth of Puerto Rico, pending Congressional approval, although this has not yet been decided. If transfer is completed, restrictions on human activities would be the same as on Culebra. Critical Habitat would include all beachfront areas on the southwest facing shore, east facing shore, and northwest facing shore from mean high tide insland to a point 150 meters from shore.

Cayo Norte

Cayo Norte is privately owned in two separate parcels. No one presently lives on the island, although there are reportedly some unoccupied dwellings. The beach may be visited occasionally by boaters, but the remoteness of the island makes such visits rare. Critical Habitat would include south beach from mean high tide inland to a point 150 meters from shore.

If published as a final rule, this proposal would require Federal agencies not only to insure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the hawksbill sea turtle, but also requires them to insure their actions are not likely to result in the destruction or adverse modification of their Critical Habitat.

Public meetings on this proposal were held in the Commonwealth of Puerto Rico (see October 1980 BULLETIN). Further comments must be received by January 21, 1981. Comments should be submitted to the Director (OES), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

SERVICE ISSUES ALLIGATOR, GINSENG FINDINGS

The Service has issued final findings in favor of the export of American ginseng (*Panax Quinquefolius*) and American alligators (*Alligator mississippiensis*) harvested during the 1980 season (F.R. 10/21/80). Under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), export of wildlife or plants listed in Appendix I or II requires a finding by the Scientific Authority that such exports will not be detrimental to the survival of the species, and Management Authority satisfaction that the wildlife or plants were not obtained in violation of the law.

American Ginseng

Export of wild or artifically propagated 1980 season ginseng has been approved for Arkansas, Georgia, Illinois, Indiana, Iowa, Kentucky, Maryland, Minnesota, Missouri, New York, North Carolina, Ohio, Tennessee, Virginia, West Virginia, and Wisconsin. The Management Authority will approve export of wild or artificially propagated ginseng only from these States because they have the mandatory or voluntary programs necessary to document the source of the plants.

American Alligator

Because of increasing alligator populations in Louisiana and Florida, and because these States have programs to monitor populations and control harvests, the Service has approved alligator exports from these areas. The finding for Louisiana applies to alligators taken in the State during the 1980 commercial harvest season, and in Florida, export is approved under the "nuisance" alligator control program during 1980 and 1981.

Provided that any export of American alligators is in accordance with the Service's regulations (50 CFR 17.42), which require the licensing of foreign buyers and tanners, and provided that hides are properly tagged, there is assurance that their export would not diminish the effectiveness of the CITES in controlling trade in other crocodilians.

Manatee Sancturaries Established in Florida

William Gill

On November 12, 1980, the Service established the first permanent manatee sanctuaries (45 FR 74880) under Section 17.108 of 50 CFR Part 17, Subpart J (44 FR 60962) which provides the means for establishing West Indian manatee (*Trichechus manatus*) protection areas (see the November 1979 BULLETIN). The three sanctuaries, designated in Kings Bay, Crystal River, Florida, prohibit all waterborne activity within them between November 15 and March 31 of each year. They are known as the Banana Island Sanctuaries, Sunset Shores Sanctuary, and Magnolia Springs Sanctuary. Boat access to residences, boat houses, and boat docks in the sanctuaries will be permitted by residents and their authorized guests by obtaining and displaying stickers provided by the Service. They will be required to maintain idle speed within the sanctuary.

The regulation which allowed the Service to designate these permanent manatee protection areas also provided for the emergency establishment of such areas. On January 11, 1980, approximately 2 acres adjacent to Warden Key on Kings Bay were established under this emergency provision as a manatee refuge. This designation expired March 31, 1980 (see the January 1980 BULLETIN).

Following the expiration of the emergency designation, the three areas in Kings Bay were proposed as manatee sanctuaries (see the August 1980 BULLETIN). The Warden Key area was deleted from the proposal because it lacked a warm water source which limited its effectiveness as a sanctuary. The area did, however, effectively demonstrate the need to provide habitat free from disturbance from waterborne activities.

The Banana Island and Sunset Shores Sanctuaries are adjacent to, but do not include, the main spring. However, they do include secondary springs. Diving activities will still be allowed at the main spring providing recreational opportunity to observe and interact with those manatees that are tolerant of human presence. The Magnolia Springs Sanctuary contains a warm water spring known as Magnolia Spring or "Alligator Hole." This area is located in a section of canal within the Springs O'Paradise subdivision.

The warm springs provide manatees with areas where water temperatures are moderated during cold weather periods. Manatees tend to "congregate" around the warm springs during these critical periods. In an effort to observe and interact with manatees, human activity increases at these manatee "congregations." This disturbance causes manatees to flee these warm spring areas subjecting them to physiological stress and increasing the potential for mortality. Disruption of normal mating or calf rearing behavior may also result.

The sanctuaries are intended to provide areas free of disturbance to manatees. Over 100 individuals out of an estimated population of 1,000 animals have been known to use the Kings Bay-Crystal River area.

BOX SCORE OF SPECIES LISTINGS

Category	Endangered U.S.	Endangered Foreign	Threatened U.S.	Threatened Foreign	Species Total
Mammals	32	241	3	21	279
Birds	66	159	3	0	214
Reptiles	13	61	10	4	75
Amphibians	5	8	3	0	16
Fishes	34	15	12	0	57
Snails	2	1	5	0	8
Clams	23	2	0	0	25
Crustaceans	1	0	0	0	1
Insects	7	0	6	1	13
Plants	51	2	8	3	60
TOTAL	234	489	50	29	750

Number of species currently proposed: 17 animals
10 plants
Number of Critical Habitats listed: 48
Number of Recovery Teams appointed: 68
Number of Recovery Plans approved: 39
Number of Cooperative Agreements signed with States:
37 (fish & wildlife)
8 (plants)

November 30, 1980

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

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